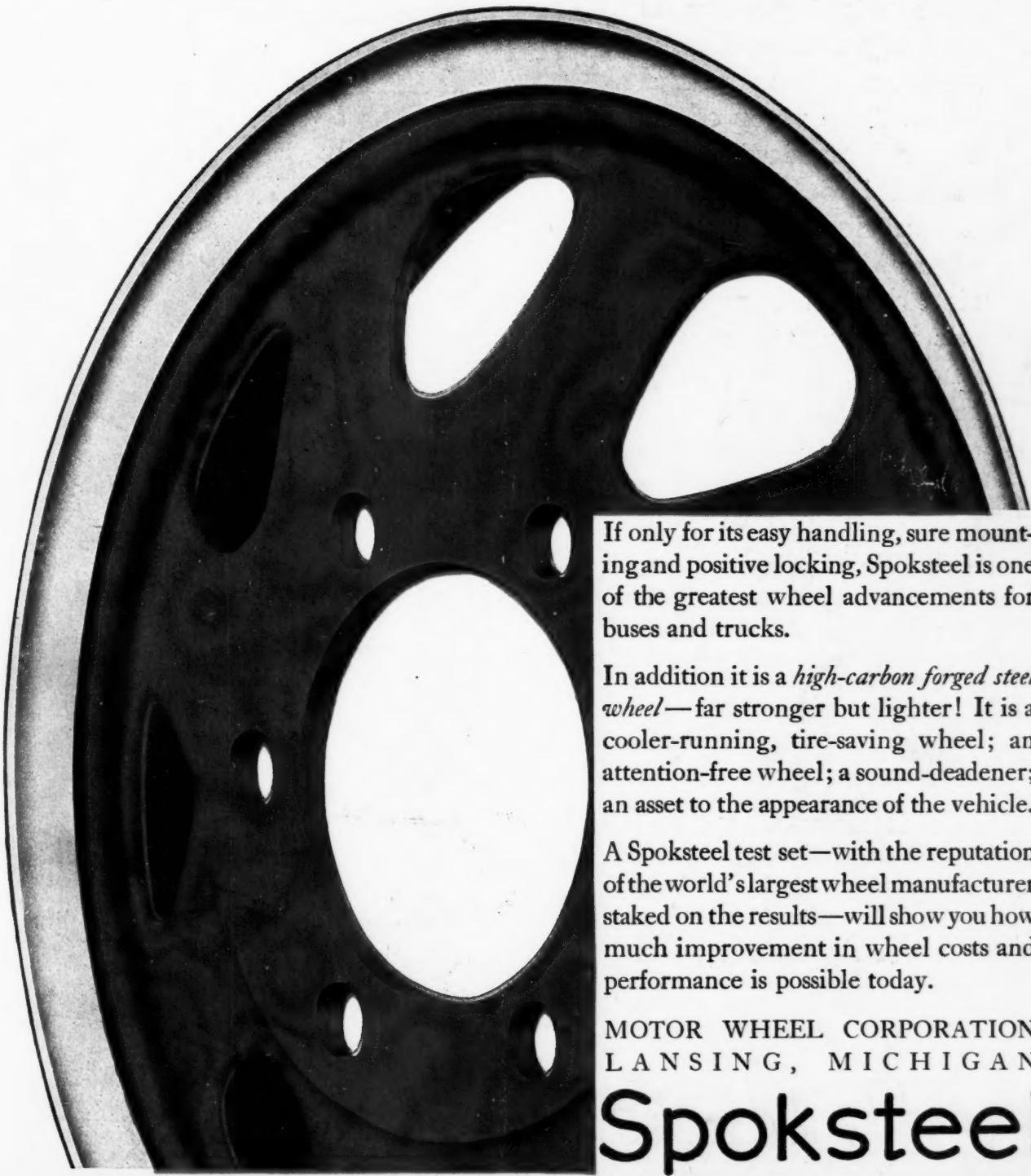


AUTOMOTIVE INDUSTRIES

Volume 58
Number 4

PUBLISHED WEEKLY AT CHESTNUT AND 56TH STREETS
PHILADELPHIA, JANUARY 28, 1928

35c a copy
\$3.00 a year



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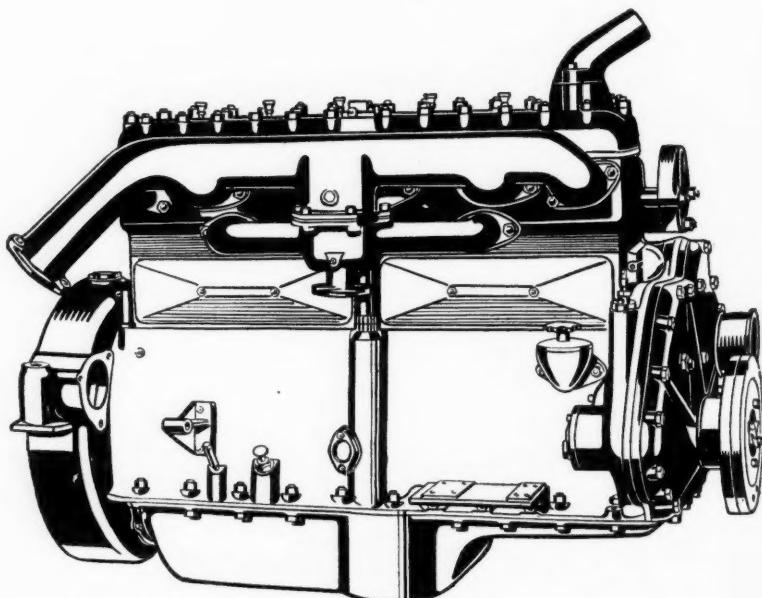
In its designing rooms, its drafting rooms, Continental ever has shunned habit. The vigor of independent thought has ruled instead. And throughout the great plants, in every operation which comprises the making and assembly of a motor, each move is held to the rigid standards of Continental workmanship, the inflexible ideals of Red Seal quality.

Illustration above shows mammoth single purpose machine which, with unvarying accuracy, drills all the holes in both sides of the crankcase at one stroke.

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Continental Motors

AUTOMOTIVE INDUSTRIES

VOLUME 58

Philadelphia, Saturday, January 28, 1928

NUMBER 4

Flynn Hews Along Old Lines in Truck-Bus Control Report

*Plan submitted last week by attorney-examiner of I. C. C.
is essentially identical to that embodied in bill
interred a year ago. Same objections seen.*

By John C. Gourlie

THE report on motor truck and bus operation offered last week by Leo J. Flynn, attorney-examiner of the Interstate Commerce Commission, presents no new idea in Federal regulation of motor vehicle transportation among the States. The plan proposed, in fact, is essentially identical to that of the Cummins Bill, which everyone supposed to have been safely interred more than a year ago.

On one or two important points, however, the proposed legislation rather goes beyond what was attempted in the Cummins Bill, and to an extent not immediately apparent from a cursory reading of the report. As will be shown later, apparently truck and bus operators coming under Federal regulation—which may involve all common carriers—will be concerned in the intricacies of quoting through-rates for combination rail and motor shipments. Not less important, the consolidations of bus lines which many believe to be imperative would apparently be impeded seriously by one of the proposed provisions.

There may be some hope that the report will be amended by the commission after the hearings scheduled to begin Feb. 10, at which, from all indications, there will be recorded emphatic opposition from the interests most immediately affected by the proposed regulation. Yet there seems to be nothing to be said beyond the reiteration of the facts and opinions brought to bear against the Cummins Bill and already familiar to Mr. Flynn and Commissioner John J. Esch of the I. C. C. as a result of the hearings held preliminary to the issuance of the present report.

Presumably, if the report is substantially unchanged after the hearings next month, it will be presented to Congress and made the basis for a new bill differing



only in minor detail from the Cummins proposal. Although there is little likelihood that such a bill will receive thorough consideration at the present session of Congress, the day of a new fight on an old battleground is thereby only deferred.

The resurrection of the Cummins plan has caused chagrin to at least one commentator on matters of regulation. In *Automotive Industries* of June 24, 1926, the optimistic statement was made that various developments had served to "render extremely unlikely the serious consideration of any such restrictive legislation as was proposed in the Cummins Bill. This bill was effectively riddled by its opponents, who brought against it about all the charges to which legislation is ever subjected. They said it was unconstitutional, inequitable and impracticable, and all three points apparently registered with the Senate committee."

Adopts Position of Railroads

But if the committee was unconvinced of the merits of the proposed legislation, or considered the time inappropriate, the same evidently cannot be said of the I. C. C., or at least of the attorney-examiner intrusted with the investigation. It seems fair to say, furthermore, that the report pretty thoroughly adopts the position of the railroads with respect to regulation, for truck and bus operators were in the main opposed to many of the provisions of the plan set forth in the report.

To take up more or less in the order of their presentation the main points in the Flynn report, it is proposed to regulate both trucks and buses engaged in interstate operations as common carriers. Hearty opposition to inclusion of trucks in regulation legislation was

recorded by both operators and shippers at the I. C. C. hearings largely on the ground that truck services and rates are necessarily governed by day-to-day considerations and that, indeed, the very value of trucking services lies mainly in their flexibility, which would be destroyed by regulation. The need for more data and more experience on which to base regulation was strongly urged.

Difficulty was also seen in differentiating between common carriers and contract carriers. A contract carrier, so-called, frequently picks up return loads and performs miscellaneous services which are similar to those of a common carrier. In the report the desire to regulate contract carriers is expressly denied, and apparently a liberal interpretation of who is a contract carrier is contemplated.

Numerous Court Actions Likely

If, then, the legislation is approved, common carrier truck operators will probably find themselves at a competitive disadvantage with the contract carriers, unregulated as to rates and schedules, and will seek to have themselves classified as contract carriers. This very likely would lead to numerous court actions aimed at obtaining a legal definition of the two methods of operation (if that is possible), and to confusion and instability.

Even private shippers owning trucks frequently hold themselves out for hire for return loads and other special services, and they should be particularly alarmed at the possibility of being classified as common carriers. From them perhaps the most effective opposition to the Flynn proposal will come.

There is recognition in the report of the fact that many common carrier trucking companies do not operate over fixed routes or between fixed terminals and therefore are not subject to the same type of regulation. Yet they still would be subject to public convenience and necessity in the granting of certificates and how could this be fairly determined? How many trucks and operators are needed, for instance, within a radius of 50 or 100 miles of a center of distribution? The question is not only complicated, but opens the way to unfair decisions against particular operators.

The point is brought out by Mr. Flynn that many of the States are already regulating common carrier truck operations. But the actual regulation is quite different and much more limited than that proposed in the report. About all that is done is to issue certificates to operators and in some instances to require the carrying of insurance or posting of bonds to cover personal and property damage. Where certificates are issued the policy has usually been satisfactorily liberal.

On the question of rates, the report says: "Carriers subject to the Interstate Commerce Act and their motor carrier operations should be authorized by law to participate in joint rates and through routes with common carrier motor bus and motor truck lines holding certificates of convenience and necessity from some regulatory body in substantially the same manner as they are now authorized to do with carriers now subject to the act."

This "authorization," in the opinion of some experts who have studied the report, would amount to compulsion in view of the control over rates sought to be established and the frequently expressed purpose of completely coordinating motor and rail transportation. The thorough linking contemplated seemingly would involve Federal control over intrastate truck and bus operations so far as these operations concerned delivery of goods and passengers to rail carriers for interstate shipment or travel.

Furthermore, if there was a necessity for a motor vehicle operator to quote joint rates this would be an intolerable burden for the small operators, in view of the complexity of the rate structure, a complexity which would be increased by the addition of motor hauls to the rail hauls. The task probably would be impossible save only for the largest operators.

Mr. Flynn would have motor vehicle operation by the carriers brought under the provisions of the Interstate Commerce Act concerned with determining net railway operating income. Part of the restrictive procedure involved is, that in acquiring new lines through mergers the rail carriers are permitted to pay little, if any, more than the physical value of the property acquired. Well-established bus lines, of course, are worth a great deal more than the value of equipment and terminals. If the report is correctly interpreted, a similar difficulty would arise in the case of two independent interstate operators attempting to merge. Apparently there will be some railroad opposition to the report on one or more of the points mentioned.

Another item of Mr. Flynn's proposed plan that operators will scarcely relish is the "grandfather clause," covering both truck and bus interstate operations. He would have certificates granted to operators who were established in interstate business on March 3, 1925, and who have been continuously in service since then; others would have to show public convenience and necessity. The date is established with reference to the famous Buck decision of the United States Supreme Court, which was handed down March 2, 1925.

This decision denied the power of the States to regulate, beyond the requirements of highway safety, motor vehicles engaged in interstate commerce. It was followed by an enormous expansion of interstate operations, so that a large proportion of the companies now in the business would not qualify under the grandfather clause. The examiner appears to question the good faith of the operators who started since the decision, but just why does not appear plain.

The small number of interstate operations previous to the decision, compared with the large number at present, would seem to argue that there had been actual need for greater service and that therefore interstate commerce must have been restricted. Operators will want to know whether a renewal of restriction is contemplated.

Joint State Boards

As to the machinery of regulation, the report favors the creation of joint State boards, composed of representatives of the State bodies supervising common carrier operations, who would issue certificates and carry out other administrative provisions, subject to appeal to the I. C. C.

Two legal questions at once arise, and one of them is dealt with at considerable length by the examiner. He quotes many decisions with intent to prove that the Federal Government can thus delegate authority to the States, but as the point is one on which lawyers hold various views only a court test can give the final answer. It has also been questioned whether in many States the officials could legally accept the power thus delegated by the Federal Government, but the report does not go into this problem.

As is shown in the article by Donald Blanchard beginning on the opposite page, bus operators have sought and apparently found a way out of legal complications without surrendering the sound principle that men acquainted with local conditions are best fitted to pass upon applications for certificates.

Another point involved is the cumbersomeness of the machinery where a certificate is sought for service covering several States. Some authorities believe that where more than three States are involved the I. C. C. should issue the certificate rather than to depend on the formation of a board with State representatives.

But such points, perhaps, are matters of detail. Aside from the inclusion of truck operations in the proposed legislation, the matter that will undoubtedly cause the greatest amount of debate and opposition is covered in the following paragraph of the report:

"The law should provide that in determining whether or not public convenience and necessity require the granting of a certificate to operate, reasonable consideration . . . should be given to available transportation service by any other existing transportation agency operating in the same territory, and to the effect which the proposed service may have upon any such existing transportation agency, the continued operation of which is important to the community served by it."

This, of course, will be regarded by the operators as recognition of the special interests of the rail carriers and they will not accept the position without a struggle. They consider motor transportation a new service differing in kind from rail transportation and to be

regulated, if at all, only with consideration of competing motor transportation services.

It is only by rendering a service more suited to the public convenience that common carrier commercial vehicle operations have prospered and grown. Why, then, propose regulation to support a service that is losing out in the economic struggle?

While the operators' stand on this point is sound enough, there is no denying that the I. C. C. is on the horns of a dilemma. Certain short-line rail operations are considered important to the communities served, yet are proving unprofitable because of the loss of traffic to motor services. The commission is obligated to see that the railroads obtain a fair return on their property investment, but there must be means for obtaining this end without restricting motor operations. One solution of the short-line railroads' problem is, indeed, suggested in the report—consolidation with main-line railroads.

Taken as a whole, however, the proposals are gravely defective from the standpoint of the operators and manufacturers and this would appear to render all the more desirable a wholehearted support of the more recent plans of the bus operators for sound and equitable legislation. As already noted, these plans are outlined and discussed by Mr. Blanchard.

Joint Boards Called for in New Bill Considered by A.A.A.

Truck-bus control measure drafted by Earl Bagby differs from Denison Bill in almost every respect.

By Donald Blanchard

A NEW bill, providing for the regulation of interstate bus operations is now being considered by the legislative committee of the Bus Division of the American Automobile Association. It differs from the Denison Bill, which the Bus Division has had introduced into Congress, in almost every important respect. Among the outstanding differences are the plan of administration, the limitation of Federal control to bus carriers operating interstate over regular routes or between fixed terminals, an advance in the effective date of the "grandfather" clause, and the inclusion of a definition of "public convenience and necessity."

Under the new bill, which is largely the work of Earl Bagby, attorney representing the California Transit Co., administration would be vested in the Interstate Commerce Commission and in joint boards which are created in the following manner: Each state utilities commission, or board, as it is called in the bill, nominates a joint-board representative for appointment by the I.C.C. In considering any particular case, the joint board consists of the joint-board representatives from States into or through which the bus line runs or will run.

Commenting on this plan at the Bus Division legis-

lative committee meeting recently in New York, Mr. Bagby said that he would prefer to have a provision in the bill establishing either a new Federal commission or creating a separate division in the I.C.C., to regulate buses in conjunction with joint boards. This in his opinion would assure better and more expert regulation of buses than would be obtained if bus control were saddled onto the I.C.C. as now constituted. Larue Brown, attorney representing the National Automobile Chamber of Commerce, expressed the view that in cases involving more than three States the I.C.C. should have jurisdiction, as obviously the more States represented on a joint board, the more cumbersome it becomes. Placing complete control in the I.C.C., which would handle bus cases through examiners holding hearings in the local areas concerned with the case pending, as is now done in railroad regulation, was favored by John A. Ritchie of the Yellow Truck & Coach Mfg. Co.

In the Denison Bill, it will be remembered, administrative authority was vested in State boards or, in some cases, in joint boards created by the State boards interested in the matter pending, appeal to the I.C.C. being provided for. This method of administration was worked out so that the control of interstate oper-

ation, which for the most part is local in character, would be in the hands of officials familiar with local needs and conditions. This plan originated in the Cummins Bill, which provided for Federal control of both interstate bus and truck carriers, and from the beginning there have been serious doubts as to whether constitutionally Congress could delegate Federal powers in this manner.

Inasmuch as it would be disastrous for operators to make large investments in interstate lines under the protection of the Denison Bill, only to have that legislation upset in the U. S. Supreme Court, the constitutionality of the measure is of great importance. The plan provided in the new legislative proposal is believed practically to eliminate any constitutional question as the joint boards would be Federal appointees.

At the same time, the "local color" which it is felt Federal regulation should have is retained.

Although "public convenience and necessity" is a widely used term, it has been defined in a great many different ways. It was not defined in the Denison Bill but in the new bill it is stated that it means "the public convenience of and necessity for the particular motor vehicle service proposed, to the public proposed to be served thereby." This means that, if an applicant is able to show that there is a public demand for the *bus service* he proposes to furnish, he is entitled to a certificate. Provision is made, however, that if one bus operator already is providing service over the route applied for, he has the privilege of making his service adequate before a certificate will be granted to someone else to operate additional service on his route. Transportation provided by agencies using instrumentalities other than the bus, is eliminated from consideration by this definition, as is any effect a bus line might have on them.

Divided Into Two Groups

The Denison Bill divides bus carriers into two groups: those operating between fixed terminals and over regular routes, and other carriers. Under the new bill only the first group would be regulated. Regulated interstate operators, however, are permitted to engage in irregular operation provided it does not impair the regular service covered by their certificates.

The "grandfather" clause would become effective one year prior to the beginning of the congressional session at which the proposed legislation is enacted. This clause provides that operators who show that they have been in continuous operation since the date stated, unavoidable and temporary suspensions excepted, are entitled to certificates after application and proof of their claims. In the Denison Bill, the date of the Buck decision, March 3, 1925, was used.

IN seeking Federal regulation, bus operators are interested only in getting the legal standing and protection from destructive competition on interstate routes that a certificate of public convenience and necessity would give them. Since the Buck decision of the Supreme Court denied the states' authority in this field, there has been no regulation of interstate bus lines and the operators want a law to bridge the gap created by that decision.

They are not particularly keen to have their business regulated intimately and in detail, but, if it is necessary to accept such detailed regulation in order to get a bill passed providing for the granting of interstate certificates, they are apparently willing to do so.

Although the Denison Bill has been introduced into this session of Congress mainly to get a place on the calendar, there is considerable doubt now that Congress will take any action before adjournment either on it or on any substitute which the Bus Division of the American Automobile Association might sponsor.

guaranteeing the applicant's responsibility. Presumably this is left to the administrative authority to provide for. Moreover, the bill does not require a filing fee, although Mr. Bagby is of the opinion that this should be required as evidence of the good faith of the applicant.

Formation of the joint boards already has been described. If a State board fails to nominate a joint-board representative, the I.C.C. may appoint a representative to function until the State body makes a nomination. Where none of the States interested in an application has nominated joint-board representatives, the I.C.C. has jurisdiction.

Subject to the right of appeal, the joint-boards have original and exclusive jurisdiction of all matters relating to the granting, denial, amendment, enlargement, revocation, suspension, lease, transfer or violation of a certificate. Original and exclusive jurisdiction of all other matters, including supervising and regulating motor carriers operating under certificate and requiring reasonably continuous and adequate service at just and reasonable rates, is vested in the I.C.C. This body, however, may refer such matters to an examiner or a joint-board for investigation, taking of evidence, opinion and report to the commission.

In cases where the joint-board has original and exclusive jurisdiction, the representative of the State in which the principal party to the proceeding has his residence or principal place of business shall be chairman. In other cases, the I.C.C. appoints the chairman. A majority vote of the joint-board makes an order or decision effective.

The original of all applications, complaints and other papers instituting proceedings will be filed with the I.C.C. and handled by that body or referred to a joint-board or an examiner in accordance with the provisions of the bill. Initial hearing shall be held

Taking up the new bill in some detail, it prohibits operation of an interstate common carrier bus line without a certificate of convenience and necessity. Operators qualifying under the "grandfather" clause are given 90 days from the effective date of the legislation to file applications and may continue operation pending disposition of their cases.

Instructions covering information to be furnished in the certificate application are much less detailed than in the Denison Bill. Briefly, the applicant must state who he is, what his address is, where he proposes to operate and what other motor carriers are operating over the routes or between the terminals he proposes to serve. In addition, he must provide any additional information that the I.C.C. may require under the law. There is no reference to filing a bond

not less than 20 nor more than 60 days after filing. No recess, adjournment or continuance of the hearing shall exceed 15 days at any one time nor more than 30 days in all. Decisions must be rendered within 90 days of conclusion of the hearing. Motor carriers operating over all or any part of the route applied for must receive notice of hearing and such others as the board of commission may direct.

Where a question of common interest is pending before two or more joint boards, the I.C.C. may order their consolidation.

In determining whether public convenience and necessity warrant the granting of a certificate, reasonable consideration, among other pertinent matters, shall be given to the public demand for the character of transportation proposed, to available *motor* transportation over the same route and to the likelihood of the proposed service being adequate and continuous. The important departure here from the Denison Bill is the insertion of the italicized word "motor" in the preceding sentence, this word eliminating from consideration transportation agencies using facilities other than the motor vehicle. Where two or more apply for the same route and one of the applicants is providing intrastate service over a part of the route, consideration may be given to this condition. In granting certificates, reasonable terms, restrictions and requirements may be attached to it, but such limitations are subject to appeal to the I.C.C. which body may refer the matter back to the joint board originally concerned.

Holders of interstate certificates under the terms of the new bill apparently would have a greater prop-

erty right than is obtained under many State laws. Original jurisdiction over the transfer of certificates is vested in the I.C.C. but it may delegate its powers to a joint board.

Complaints may be made to the I.C.C. or to the joint-board representative in a State, who will forward them to the I.C.C., by any interested party or by the I.C.C. The I.C.C. may refer such matters to a joint board or examiner. Within 30 days after notice of any final order or decision, any party to the action may apply to the body making such order or decision for a rehearing. This application for a rehearing is a necessary precedent to an appeal to the I.C.C. If the decision on the rehearing is unsatisfactory to any party, appeal to the I.C.C. is permitted, provided, of course, that the rehearing was not held by that body. Petitions for rehearsals will be on the record unless good cause is shown for the admission of new or additional evidence. If the new or additional evidence is admitted, the proceedings are reopened and the new evidence added to the record.

The new bill states that all rates, fares and charges of a motor carrier subject to its provisions shall be just, reasonable and sufficient, and where two or more carriers file joint rates, the I.C.C. in determining whether they are just and reasonable, may consider whether they constitute unfair competition with other motor carriers.

It is definitely stated in the new bill that neither the I.C.C. nor boards acting under the proposed legislation shall have any authority over intrastate motor carriers nor can they authorize a motor carrier to do an intrastate business.

Republic Announces Seven New Truck Models

SEVEN new models comprise the 1928 line of trucks offered by Republic Truck Co., Alma, Mich., designated as follows: Model 75-6, 1 $\frac{1}{4}$ tons, six-cylinder, 128 $\frac{1}{2}$ in. wheelbase; Model 76-6, 1 $\frac{1}{2}$ tons, six-cylinder, 150 $\frac{1}{2}$ in. wheelbase; Model 85, 2 tons, four-cylinder, 154 $\frac{3}{4}$ in. wheelbase; Model 86, 2 tons, four-cylinder, 170 in. wheelbase; Model S-25W, 3 $\frac{1}{2}$ tons, four-cylinder, 164 $\frac{1}{2}$ in. wheelbase; Model 65, 3 tons, six-cylinder, 179 $\frac{1}{4}$ in. wheelbase; Model 66, 3 tons, six-cylinder, 200 $\frac{1}{4}$ in. wheelbase.

Model 75-6 develops 55 hp. An air cleaner and gasolator are standard equipment. Bevel gear rear axle, cast aluminum radiator top tank, 30 by 5 in. pneumatic tires and metal spoke-type wheels are employed. Model 76-6 is similar to 75-6, using the same engine but with 32 by 6 in. dual pneumatic rear tires and longer wheelbase.

Models 85 and 86 differ only in wheelbase. Both are powered with a four-cylinder 4 by 5 in. truck engine and have front springs 39 by 2 $\frac{1}{2}$ in., and underslung rear springs 56 by 3 in. On these jobs also 30 by 5 in. pneumatic tires are standard with dual rears.

Models 65 and 66 are similar except for wheelbase and are powered with an engine which develops 76 hp. A herringbone gear, double reduction

rear axle is used with four-speed transmissions. Four-wheel Bendix type self-energizing brakes are standard.

Model S-25W has a four-cylinder 4 $\frac{3}{8}$ by 5 $\frac{3}{4}$ in. engine having a total displacement of 346 cu. in. Gasoline filter and air cleaner are included as standard equipment. Rear axle is herringbone type double reduction and the entire differential assembly is mounted on a carrier from which it may be easily removed. Two-stage rear springs are employed.

Two optional wheelbases are offered—184 $\frac{1}{4}$ and 153 $\frac{3}{4}$ in. The brake is located on the driveshaft.



Republic Model S-25W 3 $\frac{1}{2}$ -ton truck equipped with cushion tires, two-stage rear springs and four-cylinder engine

Studebaker Redesigns Engine of

Output is increased 45 per cent without changing bore or stroke. Ten horsepower also added to Commander.

Both chassis fitted with Bendix brakes.

By A. F. Denham

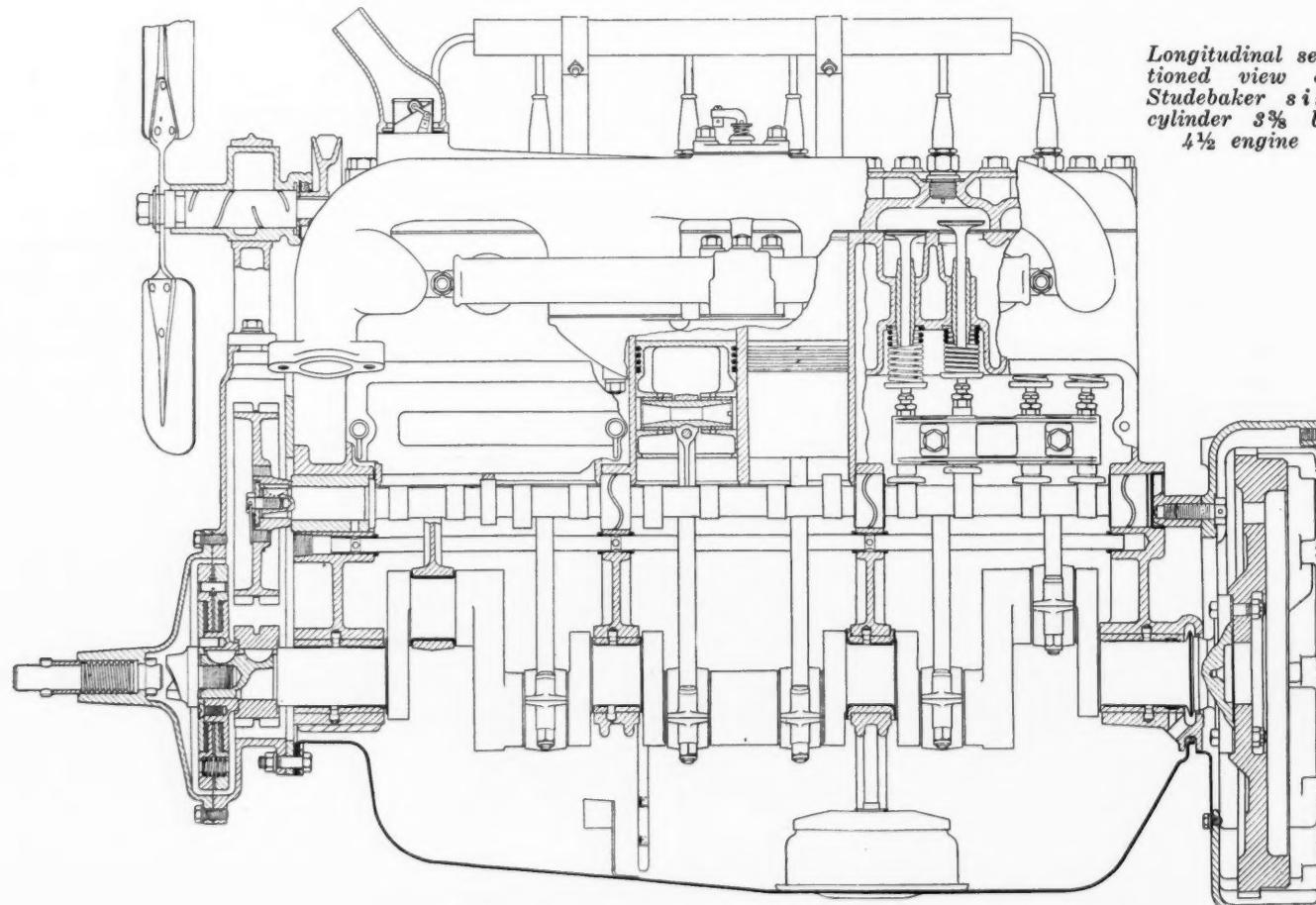
A CHECK-BACK over changes made in the Studebaker Commander and Dictator models for the past six months or so, shows that these include such major items as a redesigned engine in the Dictator, adoption of Bendix brakes on both chassis, new steering gears, adoption of AC fuel pumps, smaller wheels and new bodies of more modern design, new frames, new types of Long clutches, redesigned axles both front and rear, and better performance in both chassis with valve gears, compression ratio, manifolding, and carburetion all contributing. Along service lines the adoption of Alemite-Zerk magazine lubricators is of importance.

On the Commander an increase of 10 hp. has been effected in the motor. It now develops 85 hp. at 2800 r.p.m., the engine being of the medium speed type. Bore and stroke have been retained at $3\frac{7}{8}$ by 5 in., but compression ratio has been increased from 4.25 to

4.6 to 1 on all except the roadster, which has a ratio of 4.7 to 1. A slight increase in inlet manifold size and ports in conjunction with a new Ball and Ball carburetor are responsible, together with the increased compression ratio, for the power increase, while the new carburetor also provides better accelerating characteristics.

Other internal changes in the engine include the main bearing design. While the four-bearing crankshaft is retained unchanged in general dimensions, as well as the main bearings, the latter are now of the interchangeable bronze-backed babbitt-lined type. The latter also incorporate changes in the oil feed to the journals, by which the effective bearing area is increased by a reduction in area of the oil grooves, without decreasing the oil flow.

Silchrome No. 1 exhaust valves are a further change in the Commander motor. While the compression ratio



Dictator Model

of 4.6 to 4.7 to 1 is not high enough to require the use of anti-knock fuels, it was thought desirable to adopt these valves as an additional safeguard, the material being particularly effective in resisting the corrosive action of some of the doped anti-knock fuels.

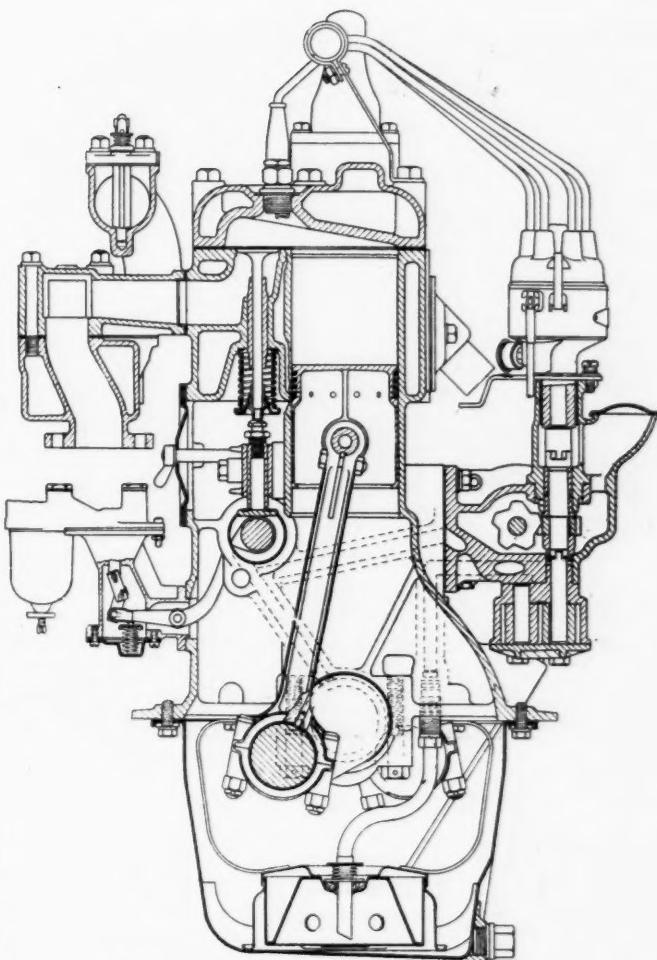
In addition to these changes, Bohnalite four-ring pistons of the invar strut type have been adopted on the Commander roadster, these weighing $1\frac{3}{4}$ lb. each. The roadster also has silchrome inlet valves, in addition to the exhaust.

A number of changes have also been made in the cooling system. In addition to a more efficient fan, now driven by a V-belt, a new radiator core of higher efficiency has been adopted, at the same time the radiator having been made narrower and higher for better frontal appearance. The water pump shaft is now also chrome-plated to decrease wear and thus reduce chance of leakage. Electrical units are now all of Delco-Remy manufacture.

Changes in Commander

Equally radical changes have been made in the chassis of the Commander. The frame is practically new in design, with cross-members increased in number from six to seven. There is now a tubular cross-member amidships in place of the former channel member while a tubular member has also been adopted between the front spring horns. The rear cross-member has been replaced by a wide gusseted plate to strengthen this part of the frame. Channel depth is increased to $6\frac{1}{2}$ in. and flange width to $1\frac{1}{8}$ in., in the side members.

Formerly only disk wheels could be used on the Commander axles. These have now been changed to permit the use of either wood, wire or disk wheels, with wood furnished as standard equipment. This change involved a switch to reverse Elliott ends. Rear axles have also been changed from the same angle, and in addition internal construction has been strengthened by increasing the size of the bevel pinion and gear, the latter being increased in diameter from $9\frac{5}{8}$ to $10\frac{1}{2}$ in., with larger pitch teeth. The increase in size of the gears



Cross section of Studebaker Dictator engine

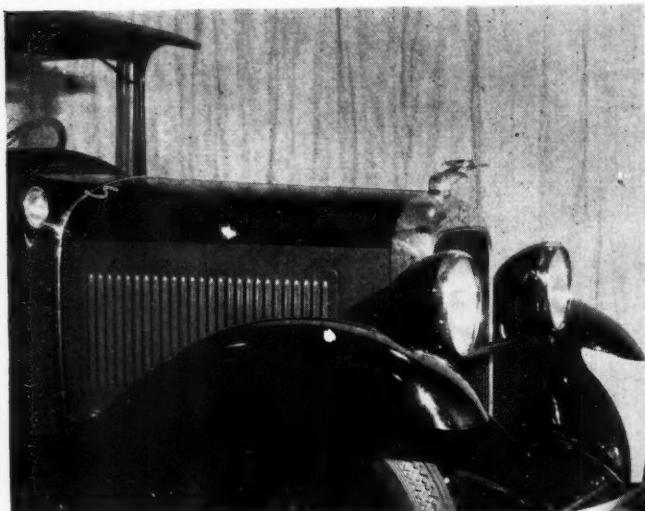
naturally also reduces the bearing loads. A further change in the rear axle construction is in the adoption of a shim method of holding in the axle shafts in place of the threaded collar formerly used. Gear ratio is now 3.31 to 1 on all models except the roadster, which has a reduction of 3.07 to 1.

Clutches have also been changed in the Commander. These are of Long manufacture and incorporate a spring cushion drive in the driving plate to absorb sudden shocks in the driving mechanism. Two facings are used with 11 in. outside and $6\frac{1}{2}$ in. inside diameter.

A straight ratio 15 to 1 reduction Ross cam and lever steering gear is now used on the Commander

Studebaker Commander
regal sedan





Hood, cowl and radiator of new Dictator model

models. For easier riding Munroe hydraulic shock absorbers have been adopted as standard equipment while the front axle spring mounting brackets are now equidistant from front and rear shackles. With this construction the fore and aft inclination of the first axle necessary to prevent shimmy is obtained by changes in the spring mounting brackets on the axle, these now being slightly inclined.

Of major importance is the adoption of Bendix four-wheel brakes. On the Commander these have 14 by 2 in. drums, supplemented by a transmission emergency brake, operated by a pull lever below the dash, as formerly. Wheels now carry 30 by 5.50 six-ply tires, the wheel diameters having been decreased from 21 to 20 in.

Bodies, both externally and internally, have been considerably changed. Roof lines of closed cars are flatter. With the narrower radiator, the cowl has also been narrowed 2 in. Body construction in itself is more solid. There is somewhat more wood used in the framework than formerly, tending toward the more completely composite type of construction. Fenders are also new in design, while the body paneling treatment has been modernized. Inside the cars are found new controls, attractive new instrument panels, and a coincidental lock on the steering column. Instrument board lighting is by the indirect method with a separate light to illuminate the coincidental steering column lock.

Included in the instruments on the panel are hydrostatic gasoline gage and engine thermometer. A cigar lighter is standard on the Regal models, on which two-tone horns are also supplied. Chromium plating is also much in evidence, radiator shells, head and cowl lamps and bumpers being finished in this material.

Many of the improvements which have been made in the Commander models have also been incorporated on the Dictator chassis. In the latter model the improvement in performance which has been effected during the past six months or so are even more striking than in the Commander. Most of the answer to this is found in the redesigned engine. Without increasing either bore or stroke the power in this engine has been increased around 45 per cent. It now develops 65 hp. at 2800 r.p.m.

Leading the changes which have contributed toward this increase in power is a new valve mechanism. Formerly a rocker arm-type of valve operation was used, in conjunction with inclined valves. This has been superseded by a camshaft on which ride mushroom tappets with chilled cast-iron heads, according to modern practice, valves being vertical. The timing has also been changed with a positive overlap at the top of the stroke, inlet opening 5 deg. early and exhaust closing 12 deg. late.

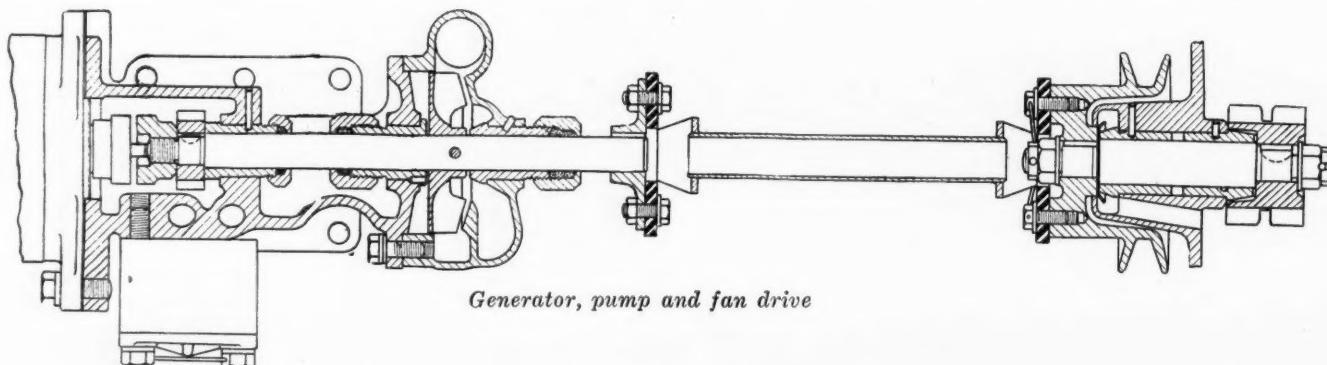
Further conducive to higher power in the Dictator engine is the adoption of a Swan-type manifold, and a new combustion chamber contour giving better turbulence. Inlet valves are chrome nickel steel with 1½ in. heads, while the silchrome steel exhaust valves have 1½ in. heads. The latter represents a decrease in size, made in order to provide more cooling around the exhaust valve seats, to take care of the higher heat with the increased power. Valve lift is 5/16 in.

Piston Ring Layout

An interesting piston ring layout is used on the Dictator also. Cast-iron pistons are used, equipped with a total of five rings. Four of these are of the compression type located in the head, with a Save-oil ring at the bottom of the skirt. The latter is given a full oil scraping action by placing it so that it overruns the bottom of the cylinder bore, which is chamfered. A considerable saving in oil consumption has been effected by this method. The four upper rings are 1/8 in. wide with a 3/16 in. ring at the bottom.

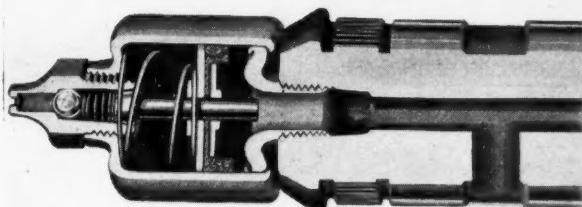
In the direction of obtaining quieter engine operation, the adoption of a Lanchester torsional vibration damper on the crankshaft is important. Differing from usual present practice, this damper is located on the shaft inside the crankcase. Also to induce quieter running, engine suspension has been changed from the three-point to the four-point type, with the front supports mounted on rubber blocks.

In the cooling system the same improvements have been made as in the Commander, including the adoption of a more efficient radiator core, with a narrower radiator, a more efficient fan driven by a V-belt and the incorporation of a thermostat in the cylinder head. A new carburetor is also found on the Dictator engine, this being a Stromberg-UX-2 plain tube type. Both



Generator, pump and fan drive

Dictator and Commander have larger, 16-gal. gas tanks. The Dictator models are also equipped with AC fuel pumps driven from an eccentric on the camshaft. Electrical units are now also all of Delco-Remy manufacture



This cutaway view of a magazine high pressure lubrication and bearing illustrates the action of the new system adopted for Studebaker cars. As the grease is forced out by the action of the bearing, new grease is forced in by the spring of the magazine

on the Dictator. One of the minor items in both models is the provision of louvres in the engine compartment pan to provide better circulation of air under the hood.

Chassis changes on the Dictator are also quite similar to those on the Commander. Frames are heavier and more rigidly braced, with channel depth and flanges increased to the new large size used on the Commander. On the Dictator frame also is found the large gusseted plate at the rear in place of the usual cross-member.

As in the Commander, front and rear axles have been redesigned to take Bendix four-wheel brakes and wood wheels. The brakes on the Dictator use 12 by 1 $\frac{3}{4}$ in. drums. Rear axle internal construction has also been strengthened similarly to the Commander axle. Gear ratio now is 4.3 to 1.

Of the other chassis units, the clutch incorporates the Long cushion spring drive, and gearbox and propeller shaft remain unchanged. Steering gears on the Dictator are now of the Ross constant ratio cam and lever type with 15 to 1 reduction for easy steering. Wheels have been reduced in diameter to 20 in., and take 30 by 5.50 tires.

Front springs are now shackled at points equidistant from the front axle as in the Commander, with 38 by 2 in. front and 50 $\frac{1}{2}$ by 2 in. rear springs, of chrome vanadium steel. Among the minor chassis changes is the provision of a grease guard over the emergency propeller shaft brake. The Alemite-Zerk magazine system of lubrication, requiring attention only every 2500 miles, is used on the Dictator as well as the Commander.

Body improvements follow the same general lines as those carried out in the Commander models, with a more composite type of construction, flatter roof lines, narrower radiator, cowl and hood, and modernized molding treatment. The Dictator models also carry a new instrument panel, while chromium plating is used to give external bright metallic finishes a higher luster and better protection against tarnishing and rust.

German Automobile Taxes

THERE has been an agitation in Germany for some time for a modification of the method of calculating the taxes on automobiles, as it was felt that the old system was responsible for the practice of fitting engines of comparatively low power, resulting in cars of very limited performance and flexibility. The system of taxation has now been revised, the bill having been

passed by the Reichstag on Nov. 25, but the basis for the calculation of the tax remains the same, that is, the piston displacement.

Motorcycles, that is, vehicles with not more than three wheels and weighing not over 770 lb., pay an annual tax of 8 marks per 100 cu. cm. piston displacement or fraction thereof. This makes the annual tax on large-size motorcycles of 1000 cu. cm. (61 cu. in.) displacement approximately \$20.

Private passenger cars with internal combustion engines pay 12 marks per year per 100 cu. cm. displacement.

Motor omnibuses and trucks with internal combustion engines pay 30 marks per year per 440 lb. weight or fraction thereof.

Electrically or steam-propelled commercial vehicles and tractors pay 15 marks per 440 lb. of unladen weight.

A sur-tax of 20 per cent on the above rates is charged for road construction. This is a reduction from 25 per cent charged last year, and the surtax will be further reduced to 15 per cent for 1929.

The above rate for private passenger cars makes the tax equal to \$113 for a car of 150 cu. in. displacement; \$150 for a car of 200 cu. in. displacement and \$188 for a car of 250 cu. in. displacement.

The new law permits of quarterly payment of the tax at an increase of 6 per cent, and semi-annual payments at an increase of 3 per cent.

Selden Has New Models

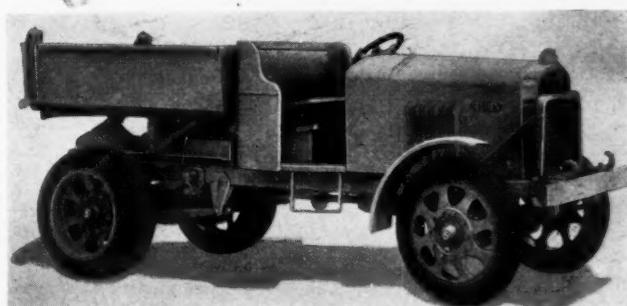
TWO new trucks—Model 2X and Model 4X—of 2 $\frac{1}{2}$ and 4-ton capacities respectively and both powered by six-cylinder engines have been added to the line being built by Selden Truck Corp., Rochester, N. Y.

Model 2X has 120-in. wheelbase and is powered with a six-cylinder, seven-bearing crankshaft engine which develops 65 hp., Stromberg carburetor, air cleaner and high tension magneto ignition are standard. The unit transmission is of the four-speed type and is connected with the full-floating, double reduction rear axle through a multiple-plate, dry-disk clutch and tubular propeller shaft fitted with metal universal joints.

The semi-elliptical springs are made of silico-manganese steel and are 41 by 2 $\frac{1}{4}$ in. front and 52 by 2 $\frac{1}{2}$ in. rear. The rear springs are fitted with helper springs on top. Cam and lever steering gear, 34 by 5 in. pneumatic tires, dual rear, and steel-spoke wheels are standard.

Equipment includes front fenders, bumper, radiator guard, Moto Meter, oil pressure gage and hand horn.

The 4-ton Model 4X has a 72 hp. engine and is mounted on a 130-in. wheelbase. Tires are 34 by 7 in. Frame is 7 in. deep of $\frac{1}{4}$ in. stock. Otherwise this model is similar to the smaller one. Both can be fitted with hand or power-operated dumping bodies.



Model 2X, 2 $\frac{1}{2}$ -ton, six-cylinder Selden truck

1928 to be Year of Intensive Merchandising Campaigns

Car manufacturers are strengthening sales organizations and inaugurating new policies designed to increase efficiency of distributors and dealers.

By Lewis C. Dibble

A SURVEY of the automotive industry indicates that 1928 will see a majority of manufacturers inaugurating the most intensive merchandising campaigns ever undertaken. Predictions have been made freely that more cars will be sold in 1928 than ever before and with automobiles at new low price levels car makers realize that at the end of the year their net profits will depend largely upon volume sales, hence it appears that the industry is to witness the inauguration of a number of new policies designed to garner for the respective companies the most satisfactory volume possible.

Besides more extensive and elaborate advertising campaigns, the year will see a concerted campaign on the part of manufacturers both to increase their dealer representation in the field and to strengthen materially the quality of their representation.

Vehicle makers, it seems, are coming to realize more and more the many difficulties under which their dealers operate and there is now a definite trend on the part of manufacturers to devise ways and means of helping the dealers solve some of the more important of the problems related to successful operation. This is not exactly a new development. In fact activities along this line have been going on among various companies over a period of years. But the fact remains that 1928 will see such activities gaining sufficient momentum to make their effects very much felt.

For several years we have heard considerable about manufacturers helping dealers increase the efficiency and volume of their parts and service problems. These programs have involved the granting of larger discounts to independent garages as a means of increasing the parts business from this source, and it has also involved the idea of the manufacturer helping the dealer lay out more efficient service stations.

Want Better Business Men

For years manufacturers have been providing their dealers with all kinds of sales propaganda. This promotion work continues but the factories have come to realize that a major sales problem is to help the distributor or dealer to be a better business man. Manufacturers know that the mortality among automobile dealers has been far too high. And it is to correct this situation that a number of companies have devised means of educating dealers along the proper lines of efficiency and profitably conducting business.

Factory executives find that many dealers are good merchandisers in that they are able to sell a record number of automobiles. But it is realized that eventually if this same dealer does not keep an accurate set of books there will come a reckoning which may find him down and out and the manufacturer without representation. And it is to relieve this situation that there is now a definite trend toward providing an efficient yet simple auditing system. To our knowledge General Motors Corp., Willys-Overland, Inc., and the Graham-Paige Motors Corp. are providing such facilities for their dealers and no doubt there are others who are doing similar work or who are contemplating starting it in the very near future.

Auditing of First Importance

The position which General Motors is taking in the matter of an auditing service for dealers was perhaps best expressed by President Alfred P. Sloan, Jr., during the New York automobile show. Mr. Sloan for some time past has been an ardent advocate of dealer auditing and in reiterating his stand in an address before the Merchants Association of New York, he said:

"There is one idea that is very much in my mind and I am trying to sell this idea as intensively as I can throughout our own organization. It is the subject of proper accounting. I have told you about the position of the automotive industry but I might have added that the weakest link in the cycle of operations is the economic position of the distributor organization, the merchants who form the connecting link between the manufacturer and the ultimate consumer."

"I am trying to impress upon those merchants the vital necessity of proper accounting as a foundation of their business—not so much as the means of determining their profit and loss and financial position at the end of the period as enabling them to analyze in a scientific way the various factors and their influence going to make up the final result so that by better knowledge of the facts they will be able to shape their course with the result that they will not only do a bigger but a better, a more successful and a more assured or more stable business."

"Of the ambitions that I have had in promoting better conditions in the operations of General Motors, the foremost one is concerning the welfare of the 20,000 merchants who sell its products and that ambi-

tion is that we shall be able to develop accounting systems so that they will know the facts about their business and we shall eventually be able to lay down bogies covering each and every item of expense, to the end that if those merchants have the ability, initiative and willingness to work and will follow these bogies, a route will be provided which will lead them to a definite and predetermined profit."

An outstanding sales executive in the industry who is strong in his praises of dealer accounting is L. G. Peed, general sales manager of Willys-Overland, Inc. Mr. Peed says that the auditing service which Willys-Overland inaugurated for its dealer organization some months ago is proving far more successful than had been anticipated. The company, he adds, has records of a number of dealers who can trace appreciable gains in their net profits to the benefits of the auditing service. Demand for the service has become so great among Willys-Overland dealers that it has become necessary to place dealers on the waiting list until such time as the Willys-Overland field auditors can call on them to make a personal study of their problems and then to install the system.

Willys-Overland has more than 6000 dealers, according to Mr. Peed, and with the recent drastic cut in prices of the Whippet models the company has been flooded with applications for franchises. The corporation will no doubt increase to a certain extent its field representation in anticipation of a 50 per cent increase in business. One trend which he pointed out as gaining headway is that of smaller districts for distributors as a means of obtaining closer cooperation between the distributor and the dealers in his territory.

J. W. Frazer, general sales manager of the Chrysler



Factory auditing service for dealers is a development that will be pushed by many automobile companies this year

Sales Corp., says that Chrysler aims at perfecting the organization in the field by giving better sales helps and generally in doing everything possible to enable the dealer more efficiently to sell Chrysler cars and at the same time insure himself a substantial net profit.

"We contemplate a more intensified merchandising plan for 1928," N. F. McDarby, general sales manager of the Auburn Automobile Co., declared. "Our plans in this respect will reach into every phase of the selling of automobiles; by that I mean the work will not only deal with closing of new accounts but, more important, also cooperating with our present distributors and dealers. Our plans also take in the education of the retail salesmen.

"It has been our experience that better results

and more satisfactory relations can be maintained by working with the distributors and dealers we already have rather than at the first sign of letting down on the part of any dealer to drop him off and endeavor to get a new account. We have added a number of additional factory field men to our force. We have divided the country into zones and it is our plan to have each zone intensively worked by a field man."

Probably one of the outstanding sales programs in the industry is that which has been inaugurated by W. R. Tracy, vice-president in charge of sales of Oakland-Pontiac. Mr. Tracy has divided the country into six regions which in turn will direct the 22 district offices. Each of the regions and territories will be manned by a corps of field men who will come in personal contact with the dealers and whose work it will be to assist the dealer in working out and solving every-day problems.

Marmon's Plans Elaborate

According to H. H. Brooks, general sales director of the Marmon Motor Car Co., Marmon is making some very elaborate plans for effective dealer assistance and intensive retail selling during 1928. The company's plans in this respect, he said, go far beyond anything heretofore.

"Inasmuch as we are contemplating the production of 45,000 cars during 1928, we expect to more than double our dealer organization and we are making fine progress now in doing so," said Mr. Brooks. "We have recently doubled our traveling men in the field representing our sales division, and have also put more service men in the field, principally service promotion men.

"Competition today in the automobile business is smart. It is a case of fighting trained organizations with trained organizations, and this company is going the limit to have its product handled in every respect by experts. We are spending two or three times more money in sales promotion, educational and field work this year than ever before and we feel it is money well invested. Our sales promotion and educational plans, of course, take in the used car department."

According to Rufus S. Cole, general sales manager of the Hupp Motor Car Corp., Hupmobile contemplates a vigorous selling campaign in 1928. From Nov. 1 to Jan 1, Hupmobile, he said, added 186 new dealers, and the company has definite plans toward further increasing and strengthening its dealer representation.

"We will increase our dealer field only to the point necessary properly to market the product," he said. "It is our plan to give all of our dealers a good average business and to make it possible for them to make a good profit."

J. W. Cleary, sales manager of the Studebaker Corp. of America, says that Studebaker anticipates more intensive merchandising in 1928 than ever before.

"We plan to increase our dealer organization because the new American edition of the Erskine Six, at its low list price, will enable Studebaker distributors to operate profitably in smaller communities than in the past," said Mr. Cleary.

Besides the plans of the companies which have been mentioned in this article it is safe to predict that many other car manufacturers will inaugurate equally energetic sales plans, with the result that 1928 will go down in history as one featuring unusual sales effort incorporating many new policies.

Low Variation of Torque a Feature of Graham-Paige Small Six

Fluctuation only 11.3 per cent between $7\frac{1}{2}$ and 46 m.p.h.

Compression ratio is 5.43 to 1 and engine develops over 50 hp. at 3200 r.p.m. Sedan is \$875.

PRICED as announced previously at from \$860 to \$875, the new Graham-Paige Model 610 marks the entry of this organization into the low-priced six-cylinder field. As on the other Graham-Paige six-cylinder models, which were described in our issue of Jan. 14, this car features a seven-bearing crankshaft with interchangeable main bearings, aluminum alloy pistons with invar strut, fuel pump, pressure lubrication to camshaft as well as main and crankpin bearings, and hydraulic four-wheel brakes. Further features are Hexdee shock absorbers, current limit relay in the lighting circuit, dummy front on the radiator, adjustable brake and clutch pedals, and ball thrust bearings in steering spindles. The four-door sedan lists at \$875.

The engine, as in the other sixes, is built in the Graham-Paige plant. It has a bore and stroke of $2\frac{7}{8}$ by $4\frac{1}{2}$ in., representing a piston displacement of 175 cu. in. and S.A.E rating of 19.4 hp., and develops over 50 hp. at 3200 r.p.m., corresponding at this speed to a car speed of 61 m.p.h. A feature of the engine design is in the low variation of torque in the driving range, this variation being only 11.3 per cent between $7\frac{1}{2}$ and 46 m.p.h. Total weight of the engine less accessories is 563 lb.

The engine is of L-head design and has a compression ratio of 5.43 to 1. Integrally cast, the exhaust and intake manifold are similar in design to those on the other Graham-Paige sixes. It is finished in black enamel and does not have to be removed in order to provide access to valve tappets. The intake manifold is of large diameter with corresponding low pressure drop and high volumetric efficiency.

The invar strut aluminum alloy pistons weigh $12\frac{1}{2}$ oz. each and have an overall length of $3\frac{19}{32}$ in. There are three rings, the two upper ones being $\frac{1}{8}$ in. wide, with a $3/16$ in. oil control type ring at the bottom. Piston pins are drilled from opposite ends, leaving a solid section in the center to prevent distortion when the clamp bolt in the rod upper end is tightened. Diameter of the pin is held to between 0.815 and 0.8125 by lapping.

Drop forged I-beam carbon steel connecting rods are used. These have a $9\frac{1}{4}$ in. center-to-center length and a weight with cap and bushings of $1\frac{1}{2}$ lb. The lower bearing is spun and reamed to $2\frac{1}{8}$ in. diameter, the crankpin length being $1\frac{1}{4}$ in. with from five to seven thousandths allowed

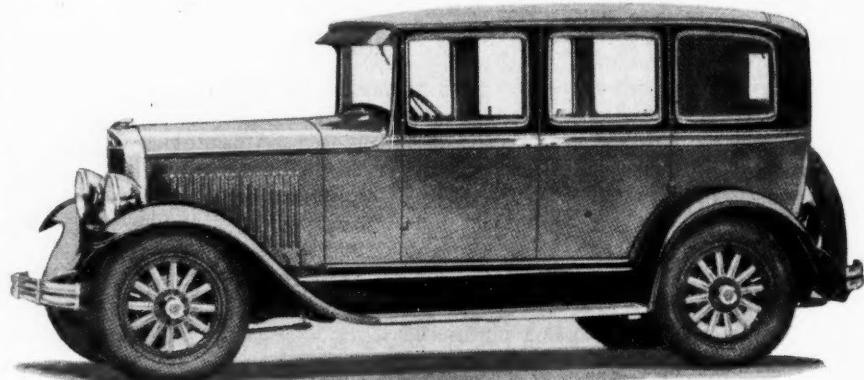
for end clearance. Lower ends of rods are also shimmed to a total thickness of 0.010 in.

Carbon steel is also used for the 58-lb. drop-forged crankshaft. This shaft is unusually large in diameter for a seven-bearing small six, main bearings being $2\frac{1}{2}$ in. in diameter. Length for the front bearing is $1\frac{11}{16}$ in., for the center $1\frac{13}{16}$ in., and for the rear $2\frac{3}{16}$ in. The intermediate bearings are all $1\frac{7}{32}$ in. long.

A bronze shell, babbitt-lined is used for the front bearing of the four-bearing camshaft. Other cam bearings ride in the cast iron of the crankcase casting. A spiral gear is machined on the center of the shaft to drive the vertical accessories shaft, while the eccentric for the fuel pump drive is placed between cylinders Nos. 1 and 2. Bearing diameters decrease from $1\frac{15}{16}$ in. at the front to $1\frac{29}{32}$ in. at the rear, with lengths for the front of $1\frac{11}{32}$, for the rear of $1\frac{1}{4}$ in., and for the intermediates of $\frac{3}{4}$ in.

No. 1 Silchrome steel is used for the exhaust valves. These have 45 deg. seats as against 30 deg. seats for the intake No. 3140 steel valves. Clear diameters are $1\frac{13}{32}$ in. for the intake and $1\frac{11}{32}$ in. for the exhaust with stem diameters of 0.3405 in., and 0.341 in. valve lift. Intake closing is set at 40 deg. after bottom dead center with exhaust opening 40 deg. early. It is not necessary to remove the floorboards to check flywheel timing as an accessible cover is provided on the flywheel housing, with the flywheel marked. Chilled cast-iron mushroom cam followers are used.

Front end drive is by means of a $\frac{5}{8}$ in. pitch chain, $1\frac{1}{4}$ in. wide, with 91 links. The chain also serves to drive the externally mounted water pump, on the right



The Model 610 is the lowest priced car in the Graham-Paige line. This four-door sedan lists at \$875. The engine is a six of 175 cu. in. piston displacement

side of the engine. A flat 1-in. fan belt is used to drive the four-bladed fan, whose shaft is hollow, forming an oil reservoir, refilled at the rear of the spindle. Length of the fan belt is 39 5/16 in. As on the other Graham-Paige models, a Long fin-and tube-type radiator with a curved dummy front is used, the latter serving as a protection for the core proper.

The engine lubrication pump is located inside the crankcase and driven by the vertical accessories shaft. Pressure lubrication is employed to all bearings except piston pins. In the fuel system there is a Carter 1 1/8 in. plain tube vertical outlet carburetor, an inertia air cleaner and the aforementioned AC fuel pump.

Electrical units, as on all Graham-Paige models, are of North East manufacture, starter engagement being by Bendix. The distributor is semi-automatic in design, with a recommended spark gap of 0.020 in. Spark plugs are standard 7/8 in. type. A current limit relay switch set to carry a normal load of 15 amp. is used in place of the usual fuses.

In unit with the engine are the single-plate Long clutch and Warner Gear Co. Model T-2 three-speed transmission. The former uses molded clutch facings, 8 3/4 in. outside and 5 3/4 in. inside diameter, 9/64 in. thick, two faces being used. A Universal Products Co. propeller shaft and universal joints assembly is used on the 610.

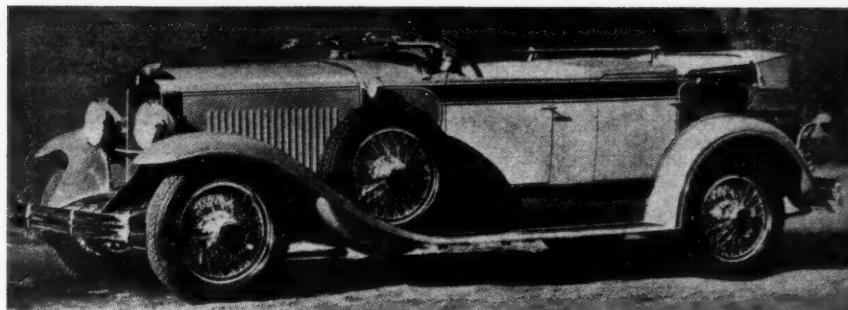
Steering gear is of Gemmer manufacture and of the hour-glass worm and sector type with 13 to 1 ratio. With its wheelbase of 110 1/2 in., the car has the low turning radius of 18 ft. The wood wheels are of Motor Wheel manufacture and carry 29 by 5.00 balloon tires.

Semi-elliptic springs are used all around, 36 by 2 in. at the front and 52 by 2 in. at the rear. Springs are designed for Hotchkiss drive. Service brakes are external Lockheed hydraulics on 12 in. drums, with interchangeable brake bands. Brake lining is 1 1/2 in. wide, 3/12 in. thick and each drum takes two pieces, one 9 3/8 in. and the other 19 1/2 in. long. An auxiliary parking brake is mounted on the transmission shaft. It has a 6 in. drum, 2 in. wide, and takes 18 1/2 in. of lining.

Front and rear axles are of Salisbury make, "O" being the model designation for both. Front axles have reverse Elliott ends, ball thrust king pin bearings, ball type tie rods and double Timken wheel bearings. Semi-floating construction is used for the spiral bevel drive rear axle. It has a banjo type housing of pressed steel and a reduction ratio of 4.44 to 1. Pinion mounting is on Timken bearings, as are axle shaft and differential bearings. Road clearance is 8 1/2 in. under rear and 8 in. under front axle. Frames are of pressed steel with 5 1/2 in. channel depth.

Included in the standard equipment are a rear view mirror, automatic windshield wiper, robe rail, foot rest, silk draw shades, water temperature indicator on the dash as well as a dash fuel gage. Four Hex-dees, an air cleaner and front and rear bumpers are also standard.

Featuring the Graham-Paige straight eight of 135 in. wheelbase, the Model 835, is a new engine built by Continental for the exclusive use of Graham-Paige.



Le Baron custom phaeton on Graham-Paige 629 chassis

It has a bore and stroke of 3 3/8 by 4 1/2 in., giving it a piston displacement of 322 cu. in. and a rating of 36.45 hp. It develops 76 hp. at 3200 r.p.m. Total weight of this engine less accessories is 837 1/2 lb. Features are four-point rubber suspension, oil cleaner, air cleaner, aluminum alloy invar strut pistons, automatic adjustment for the front end drive chain, and a Lanchester torsional vibration damper.

Five interchangeable bronze-backed babbitt-lined main bearings support the 92-lb. drop-forged 2 5/8 in. crankshaft, the front bearing being 1 21/32 in. long, the center 2 in., the rear 2 23/32 in., and the two intermediate bearings 1 5/8 in. Crankpins are 2 1/2 in. in diameter with 1 1/2 in. of bearing length.

Rods are I-beam in construction with spun-in and shimmed lower bearings. They are 9 in. long between centers and weigh 2 lb. 10 oz. complete. Piston pins are full floating, located in position by snap rings in the piston bosses. The pins themselves are hollow at both ends, solid in the center and .859 in. in diameter. Pistons have an overall length of 3 15/16 in., with a compression distance of 2.31 in., giving the engine a compression ratio of 5.11 to 1. There are a total of four rings per piston, the three upper 1/8 in. rings being supplemented by a 3/16 in. oil control-type ring at the bottom.

Engine is L-Head Design

The engine is an L-head design. Manifolds, both exhaust and intake, are cast in one unit and so disposed as to provide for easy access to valve tappets. Six bearings support the camshaft, ranging in diameter from 2 5/16 in. at the front to 2 in. at the rear, all bearings being of the bronze-backed babbitt-lined type. Lengths are 1 5/16 in. for the front, 1 3/4 in. for the rear, 13/16 in. for Nos. 2 and 5, and 11/16 in. for the two center bearings. The spiral accessories driveshaft gear is machined on the center of the camshaft while the eccentric for the AC fuel pump drive is located between cylinders 1 and 2.

A Link-Belt chain with automatic idler adjustment is used for the front-end drive.

Located inside the crankcase, the oil pump is driven from the bottom of the vertical accessories driveshaft. It delivers oil under pressure to main, crankpin, camshaft and pump shaft bearings, in addition to chain idler, and tappets.

A 1 3/4 in. air valve type carburetor is used in conjunction with the AC fuel pump, an inertia air cleaner being mounted on the carburetor air intake.

In unit with the engine are a Long double-plate clutch and Graham-Paige-Warner Gear four-speed transmission, the latter being used on the former Paige straight eight. The Long torsional vibration damping mechanism is incorporated in the clutch.

S. A. E. Standards Changes Deal Mainly With Details

Nine divisions make reports at Detroit meeting. New maximum fillet radii for ball bearing mountings on shafts are recommended. Length of batteries increased.

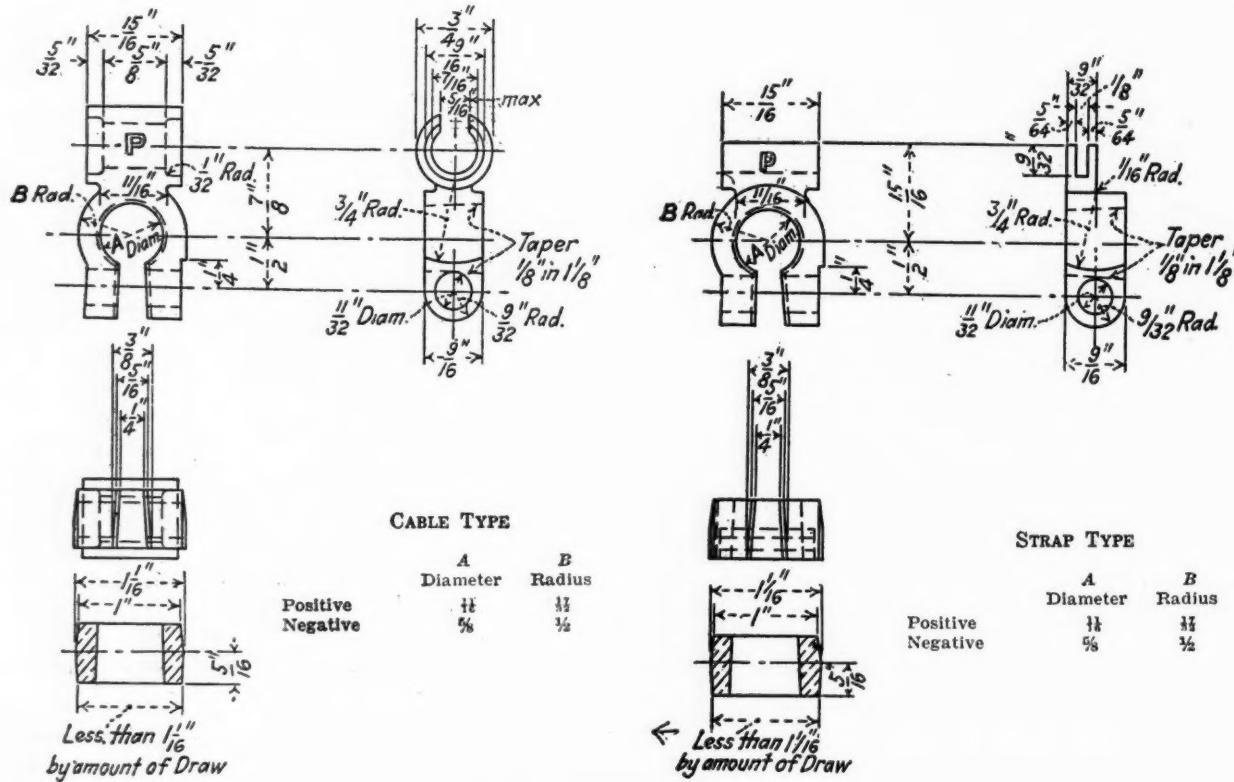
AT the general meeting of the S.A.E. Standards Committee, which was held in Detroit this week in connection with the annual meeting of the Society, nine Divisions made reports embodying proposals of either entirely new standards and recommended practices or revisions of already existing ones. Most of the recommendations involved matters of detail only.

The Ball and Roller Bearing Division recommended new maximum fillet radii for ball bearing mountings on shafts and minimum corner radii for housings for ball bearings. The present standard fillet radii have been criticised as too large, leaving too small a surface on the bearings to properly seat against the shoulder on the shaft, and also too small a land on the bearing races. This applies to the small sizes in the S.A.E. Standard for Annular, Extra Small and Angular Contact Ball Bearings. Other reasons for the changes proposed are that it is desired to have the S. A. E. standard conform to the proposed American standard and to permit of

standardizing the tools for the bearing widths and the corner radii. The proposed fillet and corner radii are as follows:

Bearing Widths, Inclusive,	Fillet Radii Maximum	Corner Radii Minimum
Mm.	Mm. In.	Mm. In.
5-6	0.4 0.016	0.6 0.023
7-8	0.4 0.016	1.0 0.039
9-11	0.6 0.023	1.0 0.039
12-14	1.0 0.039	1.5 0.058
15-20	1.0 0.039	2.0 0.078
21-25	1.5 0.058	2.5 0.097
26-30	2.0 0.078	3.0 0.117
31-40	2.0 0.078	3.5 0.138
41-50	2.5 0.097	4.0 0.157
52-54	3.0 0.117	5.0 0.197

The present standard for motorcoach batteries is based on a battery plate thickness of 5/32 in., which was in general use at the time the standard was formulated. Since then several makers have developed a 1/4 in. plate for motorcoach batteries and an increasing demand has developed for batteries with this type of



S.A.E. standard storage battery terminals

plate. The Sub-Division on Motorcoach batteries of the Electrical Equipment Division therefore decided to increase the maximum permissible length of batteries Nos. 24 and 26, as well as to increase the permissible height of all batteries, to permit of the use of stronger cases. The minimum ratings of most of the sizes have been increased, and a new large size, No. 27, has been added. It is recommended that where the method of installation makes the handling of heavy 12-volt batteries difficult, two 6-volt units of similar capacity be used. The new storage battery specifications are given in the following table:

Proposed Revised Storage-Battery Specifications

Battery No.	No. of Cells	Minimum Capacity at 8-Hr. Rate,	Minimum Current for 20 Min., Amp.-Hr.	Maximum Over-All Dimensions, In.		
		Amp.	Length ¹	Width	Height	
21	3a	110	135	17	7 5/8	10 7/8
22	3a	129	157	19 1/8	7 5/8	10 7/8
23	3a	178	225	25 7/8	7 5/8	10 7/8
24	6a	88	112	26 7/8	7 5/8	10 7/8
25	6b	88	112	20 7/8	9 5/8	10 7/8
26	6a	104	140	32 1/2	7 5/8	10 7/8
27	6a	118	160	34	7 5/8	10 7/8

^a Side-to side assembly of cells.

^b Double-row, end-to-end assembly of cells.

¹ The over-all end-to-end length includes handles, not hold-down devices. The handles and the hold-down devices shall be attached only to the ends of the case. Terminals and connections shall not extend above the handles; the latter shall be the highest point.

The Electrical Equipment Division presented also a proposed standard for storage battery terminals. It appears that such terminals often give trouble from breakage and rapid corrosion, and in formulating the new proposed standard, efforts were made to eliminate the causes of these troubles. Corrosion is due largely to too large a proportion of zinc in the alloy by which the terminal is made. It was not thought advisable to completely specify the composition of the alloy, but as a matter of general information a note was added to the effect that the minimum copper content should be 75 per cent by weight, as any smaller proportion will materially shorten the life of the terminal. Also as a matter of general information it is stated that the minimum tensile strength of the terminal between clamping jaws (as determined by pulling in a tensile testing machine) should be 300 lb. Dimensional standards are set for two types of terminal, the cable type and the strap type. In both types the clamping head for the positive has an internal diameter of 11/16 in. and an external diameter of 1-1/16 in. and for the negative, an internal diameter of 5/8 in. and an external diameter of 1 in.

The Engine Division proposed certain changes in the standard engine testing forms and the adoption of an additional form, D-6, which is believed to meet the special requirements of manufacturers of large engines for airplanes, motorboats and railcars. In order to facilitate flywheel housing assembly, the Engine Division recommended that the paragraph in the clutch housing standard referring to cap screw holes be revised to read as follows: "The cap screw holes in the clutch housing flanges shall be 3/64 in. larger than the nominal diameter of the flywheel housing cap screw."

The Engine Division also has revised the Standard for Fan Belts and Pulleys. A paragraph on pulley diameters is added, as follows:

"To insure long belt life, the diameter of the fan driven pulley should be made as large as possible consistent with the size of the fan. It is recommended that the diameter of the driven pulley be made not less than

one-fifth of the diameter of the fan, and not less than 3 1/4 in. in any case. Fan pulley diameters are to vary by increments of not less than 1/4 in."

The angle of groove has been changed to 38 deg. for all cases, where formerly it was 28 deg. when the belt was to drive a fan only. The width of the belt is to be equal to the width of the pulley groove measured on its outside diameter. In accordance with the change in the angle of the pulley groove, the angle of the belt has been changed to be 42 deg. in all cases. A paragraph on Finish of Pulleys is added, reading as follows: "Driving surfaces of pulleys shall be smooth and free from tool and chatter marks."

A new standard for hood ledge lacing is recommended by the Engine Division, reading as follows:

Hood Ledge Lacing

Thickness, In.	Width, In.					
	5/8	1/2	5/8	3/4	1	1 1/4
1/8	X	X	X	X	X	X
3/16		X	X	X	X	X

When woven, the material shall be made of a good grade of cotton yarn, woven solidly with a fine weave. It shall not contain jute. The finished webbing shall be thoroughly impregnated with a light solution of creosote or asphaltum, cut in a solvent deodorized as much as possible. The finished lacing shall be flexible and shall retain its flexibility and resiliency.

The Iron and Steel Division recommended specifications for a new high-manganese, high-sulphur steel, X-1315, corresponding to steels now extensively used in the industry on account of their free-cutting qualities. The specifications for this steel are as follows:

Proposed S.A.E. Steel No. X-1315

Element	Per Cent
Carbon	0.10 - 0.20
Manganese	1.25 - 1.55
Phosphorus (max.)	0.05
Sulphur	0.08 - 0.13

Several modifications in the definitions of heat-treating terms previously adopted by the Society were suggested.

When the present specifications for laboratory tests of headlamps were drawn up the dimming system was still in common use. Since that time the double-beam type of headlamp control has been largely adopted, and this has made a revision of the specifications necessary. The specifications submitted relate to the depressed-beam type of lighting for 21-cp. lamps. To avoid confusion with the present S.A.E. Recommended Practice for Headlamp Illumination, the latter has been revised and incorporated in the proposed new specification, which provides for both the single beam and the depressed dual beam types of lighting.

A Sub-Division of the Motorcoach Division appointed to look into the possibility of providing a standard mounting for compressors for air brakes, found that the compressors now on the market vary so greatly in respect to their driving and mounting requirements that such a standard would be impracticable. It was found feasible, however, to recommend a standard tapped hole in intake manifolds for vacuum brake installation, and the following recommended practice was proposed: "The vacuum brake manifold connection shall be a 5/8 in. hole tapped with the American Standard pipe thread."

The Parts and Fittings Division, in view of the increasing use of frame horns for bumper mounting, recommended the insertion of the following paragraph

in the Recommended Practice for Front Bumper Mountings for Passenger Cars: "In cases where integral frame horn mountings are desired, the clamp bolt hole spacings should be such as to anticipate a standard bumper-mounting bar width, the sizes of which are as follows: 1½, 1¾, 2, 2¼, 2½ in."

In assembling parts that are held in place by Woodruff keys, some difficulty has been experienced in so fitting the keys that they will be tight enough to remain in place in the shaft during the process of assembly and yet not so tight that they will distort the shaft. A table of dimensions and tolerances designed to eliminate this trouble has been worked up by D. W. Ovaitt, a member of the Parts and Fittings Division and also Chairman of the Tap and Gage Committee of the General Motors Corp. This table was presented by the Parts and Fittings Division for the approval of the Standards Committee.

The Parts and Fittings Division also proposed to extend its specifications for oil and grease cup threads by adding the length of thread and the dimension over the flats of the hexagon directly above the thread. In setting the dimensions for the hexagon the nearest reasonable hexagon used on S.A.E. bolts and nuts was chosen. The recommendations made are embodied in the following two tables:

American Standard Pipe Thread

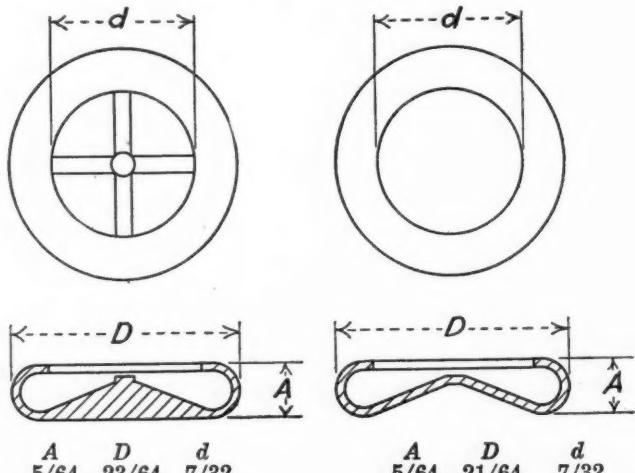
Size	Threads per in.	Width across Flats of Hexagon	Minimum Length
1/8	27	7/16	3/8
1/4	18	9/16	7/16
3/8	18	5/8	1/2
1/2	14	7/8	5/8

Straight Thread

Thread Diameter	Threads Per in.	Width across Flats of Hexagon	Minimum Length
No. 10	32	3/8	3/8
1/4	32	7/16	3/16
5/16	32	7/16	1/4

It was found necessary to provide closer tolerances on the taper fittings standardized by the Society, and the Parts and Fittings Division recommended that where tolerances are shown in the taper fitting specifications, the tolerances on the taper per foot be reduced from plus and minus 0.005 in. to plus and minus 0.002 in.

Two types and three sizes of caps for use with split and tubular rivets were recommended for adoption by a Sub-Division of the Parts and Fittings Division. The types are illustrated by the drawings herewith and the dimensions are given in the tables below:



Another Sub-Division of the Parts and Fittings Division drew up specifications for the joint parts of

steering gear connecting rods. Because of the varying requirements with respect to stiffness when the rods are bent, it was decided to omit all mention of the tubing except for a note on the quality of the steel to be used. The tubing is to be cold-drawn seamless steel not inferior to S.A.E. No. 1020. Four drawings and the same number of dimension tables were included in the recommendation, pertaining, respectively, to the housing, the plug, the sockets and the springs. One design was shown with spacers between the socket and the plug and between the socket and the bottom of the enlargement in the housing, but this was included for information only, as there was no agreement among members of the Sub-Division as to their value and there is nothing like unified practice.

Screw Threads Division

The Screw Threads Division recommended that the following note be appended to tables of body and thread lengths of unslotted-head bolts:

"The table of body and thread lengths reproduced above is intended as a guide to the users of these bolts. Many of the listed sizes and lengths will not be regularly stocked by the manufacturers, but will be available on order of a sufficient quantity."

A new, simplified list of rims for low pressure tires was presented by the Tire and Rim Division. In submitting the recommendation, Chairman H. M. Crane pointed out that the 21 by 2.75 in. rim may seem to be out of line with the rest of the sizes, but this size is used by Ford and Chevrolet and represents too large a production to be ignored. The 21-in. wheel diameter undoubtedly reflects the large use of these low-cost cars in rough country. It is believed that ultimately, however, a 20-in., or smaller, wheel will probably come into use. The width of this rim is also out of line with other rims. There is still a wide divergence of opinion in the tire industry as to the optimum rim width for a given cross-section. This is one of the features of tire design on which definite engineering knowledge is still lacking. As the variation in the life of individual tires is greater than that produced by any ordinary change in rim width, the formulation of rules for conclusive tests appears to be difficult, if not impossible. Undoubtedly the inflation pressure used would have to be taken into account.

Recommended Rim Dimensions for Low-Pressure Tires

Nominal Rim Diameter (Tire-Seat Diameter), In.	Nominal Rim Width, In.	Nominal Tire Sizes Used
21	2.75 DC or Flat Base	30x4.50
18	4	28x5.25, 30x6.00
19	4	{ 29x5.00, 29x5.50 31x6.00 }
19	4½	31x6.00
20	4½	32x6.00
20	5	32x6.00, 32x6.75

The committee adopted all the recommendations with the exception of that applying to ball bearing radii, confirmation of which was held up due to the present international standards situation. The motor coach battery report was approved for publication with omission of the last paragraph. The pulley report was referred back to the committee for further consideration of belt angles.

AN automobile exhibition will be the chief feature of the fourteenth annual fair to be held in Vienna, Austria, on March 11. The exhibition will be international in character.

Just Among Ourselves

Growth in Foreman Training Courses

THE need of industry for trainer lieutenants in the rank and file of its production lines is well illustrated by the great increase in the number of foreman training courses during the last two or three years. The Chamber of Commerce of the United States reports, for instance, that the number of foreman training courses in this country increased from 105 in 1925 to 933 in 1927. With relatively so few courses in operation three years ago and with the growth in this type of educational work so very rapid, it is natural that efforts of this kind still should be more or less experimental as regards methods and details of operations in many instances. The automotive industry has been taking a constructive part in working out the training methods best adapted to its particular conditions and much progress has been made. Accumulation and correlation of the experience of the next three years, however, should result in adding greatly to the potential effectiveness of these courses.

* * *

Shows This Year Will be Business Getters

THERE were lost of good dinners and meetings in New York during show week as usual, even if some of the after-dinner oratory wasn't up to standard in one or two instances. The hotel lobbies were just as crowded as usual and the difficulty of locating any given person at any given time was just as great as ever. Crowds at the show itself were larger than in previous years, indicating that the automobile still is a big drawing card for

public interest after 28 years of exhibitions. If the New York show is any criterion—as it generally is—the local shows throughout the country this year are going to be excellent business getters for the dealers.

* * *

Stuff Mergers are Made of

WITH rumors of mergers still continuing to fly through the automotive air like so many mental witches on broomsticks, it is interesting to get the frank opinions of some important men in the industry about certain fundamentals which enter into consolidations in general. We have pointed out the more or less obvious fact on more than one occasion that far more than mere immediate efficiency of operation enters into every possible merger which might be thought of, however the matter may be presented when consummated. Now it is particularly interesting to read in a report made public by the Sherman Corporation a statement on the subject from so important an automotive figure as W. R. Angell, vice-president, Continental Motors Corp.

* * *

Not a Panacea for Troubles of Industry

IF one will stop to consider," Mr. Angell is quoted as saying, "and get at the real facts it will be seen that a merger in itself, as usually considered, is not a panacea for the problems of the automotive industry. When successful firms are merged on the usual formula, the public purchasing the new shares pays an enormous price for duplicated good-will, duplicated dealer organizations, duplicated plant capacity, machine

tools, dies, inventories, etc., all at reproductive values . . . Mergers worked out by practical business men who carry the responsibility of making the new organization a complete operating success would naturally mean the elimination before the merger and not after, of the duplications, millstones and obstacles which would be useless in the new set-up."

* * *

Should Demand Workable Set-Up

WHEN the bankers and the public get this viewpoint," Mr. Angell continued, "and demand a workable set-up looking to future successful operations rather than past earnings records, something constructive may be accomplished and many existing problems solved." There is much of outspokenness and candor in Mr. Angell's remarks which makes them worth serious consideration.

* * *

Ocean Flights Predicted By Us Nine Years Ago

WE are indebted to W. H. Dey of the United States Radium Corp. for calling our attention to what a good prophet *Automotive Industries* turned out to be aeronautically speaking. Mr. Dey has sent us a clipping from our issue of Jan. 12, 1919, which, if we can subtract, is nine years ago, announcing that "Now that the war is over and aircraft manufacturers are confronted with the problem of finding new outlets for their production, we may soon see serious attempts made to fly across the Atlantic Ocean." Then were listed several planes then under construction whose builders had some thought of using them for such a flight.—N.G.S.

Price Cutting on *Instalment* Paper Imperils Finance Companies

Practice, if continued, will result in disaster for some, says bank official. Manufacturers are urged to take greater responsibility for marketing of cars.

By Oscar F. Meredith*

Vice-President, The Bank of America, New York

IT has always seemed to me that the manufacturer should take a greater interest in, and responsibility for, the marketing of cars. With a greater community of interest, lower financing charges and closer supervision of risks seem possible, and these two points are the keys to an even higher rating for the financing business, and larger and more regular dividends to the stockholders.

The head of one of the larger finance companies recently said that paper is now in good order, but that rate cutting makes it difficult to retain good accounts at a proper profit. Now the better class of customer is rapidly coming to realize the added cost of time buying, and permanently lower rates or charges undoubtedly are coming, but price cutting here and there on certain classes of time paper in which the public does not directly share, and for the sole purpose of increasing the business of the finance company, will result in disaster for some sooner or later.

Competition in all lines is keen, and not less so in the banking business than others, but the bankers thus far have quite generally adhered to persuasion, personal equation, better service, closer personal attention, etc., rather than to rate reductions.

It seems to me one thing seriously wrong with the finance business today is that there is not enough of it for the number of executives and amount of capital employed. Furthermore, there are too many in the business who apparently thought all that was needed was capital, but as a number of them have already indicated a willingness to sell out or consolidate, while some have failed, a business depression, if and when it comes, may find the industry directed only by experienced and capable executives, of which you can list several of outstanding ability.

*From an address before the Auto Financing Credit Men's Association.

The statement was made by a speaker at a recent convention of the National Association of Finance Companies, that there is a greater number of sales of automobiles being made for cash. If true, that means a smaller proportionate volume of automobile financing, and you should be certain that at the same time it does not eliminate a great amount of prime paper, leaving you to judge a greater percentage of second and third grade risks. Furthermore, as the automobile time paper is reduced, the temptation is offered to make up the lost volume by going into open accounts, and every other kind of time paper, which is justified only if a specialist is available for each division. Otherwise, the finance company engaged principally in purchasing automobile paper should try to exchange his assigned accounts business for the minority automobile business of another house.

Wholesale Financing

Occasionally a statement appears showing rather large amounts covering wholesale financing. The ability to finance a large number of unsold cars doubtless results in more uniform operation of plants, but it seems there are few, if any, industries in which the manufacturers assume less risk in carrying unseasonal finished merchandise than the automobile manufacturers. The practice is not such a serious one if the manufacturer is strong financially, assumes a portion of the risk and is willing to execute a repurchase agreement, but here again the debtor's assets and the collateral should appear ample, irrespective of the repurchase agreement.

Unless the cars to be financed are manufactured by a highly successful and strong company, and the product itself has been accepted by the public, you should not become a party to the storage arrangement, and by leaving the dealer and manufacturer to work out a plan you will automatically compel the latter to take a greater interest. In fairness, I want to state that some of the better producers have already realized the advantages of greater cooperation.

A few words regarding automobile dealers might be permissible. I often wonder if there ever has been a dealer whose paper and indorsement were not acceptable to some finance company. This is a serious matter if we will but consider the rise and fall of the hopes of thousands of dealers. Therefore, I repeat what I have said on other occasions: there is no justification for so many dealers, and your business would be sounder if it originated only with dealers who had adequate capital, character and capacity. Under the latter con-



Oscar F. Meredith

ditions, salesmen could be better trained, not only in selling, but in credits.

In a certain community not far from New York City are eight automobile agencies and seven newsstands, and the latter are probably the better credit risks. We will spend our two cents for a paper, or a quarter for cigars, in the neighborhood, where convenience is important, but a 30-minute trip to the city to spend \$2,000 for a new car should not be considered a hardship. Furthermore, I cannot help believing that the desire to own an automobile is created by seeing them driven along the streets, rather than standing in show rooms.

We can hardly claim to have covered our subject without some reference to the second-hand car problem, and you know what a problem it is. A tremendous number of used cars are not collateral at all, and because of repair costs are a liability to the owners, making it doubly difficult to meet instalments. The book values mean little, unless liberally discounted, and if in addition the particular make is likely to become an orphan the reasons for shorter terms and larger down payments, or complete refusal, are multiplied. The dealer's opinion of the value of second-hand cars is inclined to liberality, as he has the new car commission and his franchise to consider. The foregoing are additional reasons for fewer, and in consequence more responsible, dealers.

Don't misunderstand what I have said, for no one could be more enthusiastic than I over the great success of the automobile industry, and what it has meant during the past few years to business generally. No one could hope or believe more firmly in its continued success, and that is why we should make every purchaser a satisfied owner. A buyer who causes you collection trouble is not a satisfied owner or citizen, and in the past there have been entirely too many such cases.

System Here to Stay

Instalment selling is here to stay, although circumstances will necessitate modification from time to time; not alone because of mistakes made in automobile financing, but because the finance companies have encouraged time sales of too many other kinds of merchandise. It may be difficult for many men to save up enough in advance to buy a car, a home or even furnishings for that home, but when you encourage him to acquire all the luxuries or even some of the seeming necessities for the home on deferred payments, you are playing on the weakness and not the strength of the individual, and when merchants or finance companies have to carry time paper covering a new tire for the car, or the new rear porch to the home, they are dealing with dangerous consumer credit, and weakening the more legitimate side of the business.

Finance companies are also here to stay, and one of the sure ways to bring on grave economic difficulties would be to suddenly revoke all credit to finance companies, thus slowing down the great business dependent upon them. Your fraternity doubtless has realized its position in this, but it is very important that from the large number of concerns so engaged some do not accept it as an opening for practices necessitating drastic curtailment of credit.

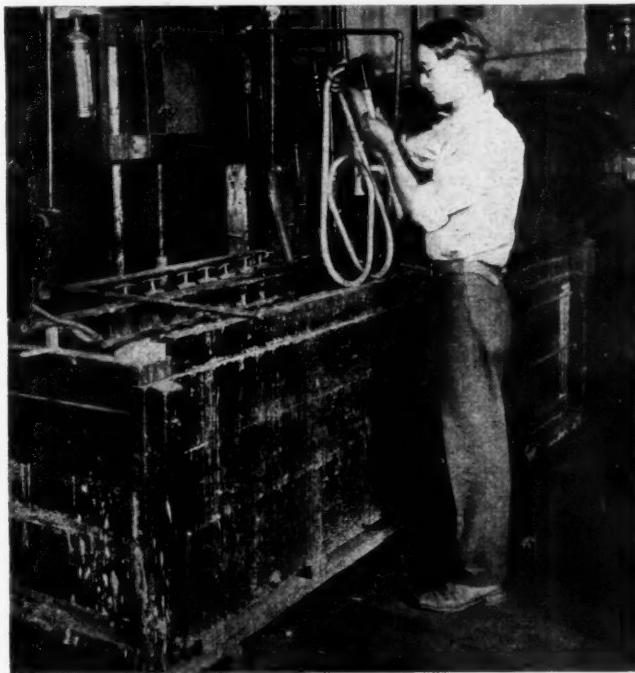
You should not cease for a moment in the attempt to devise improved plans acceptable to your clients and your bankers, and to which all finance executives can subscribe. Too many decisions heretofore appeared to have been made for the benefit of weak dealers and buyers. It would be better to slow down production a

little now by scrutinizing buyers' credits more closely, than to have an unavoidable decline in employment prove the fear of many of your critics as to the unsoundness of deferred payments. Instead of sharing the fears of the more severe critics, I will state that in principle I approve of instalment selling, but as a comparison, if there is an overgrown child in the family it is neither advisable nor proper to rid ourselves of the child, but we should see that it does not indulge in so much indigestible food that its health is dangerously if not permanently impaired.

Electric Immersion Heater

GENERAL ELECTRIC CO. has recently developed an electric immersion heater for use in electro-plating solutions and other liquids which will not attack lead. The unit consists of a steel-sheathed helicoil unit covered with a lead jacket swaged tight to the steel unit. The terminals are brought into a terminal box suitable for conduit connections.

It is made in two sizes, both for a maximum demand of five kilowatts, one for 110-volt circuits and the other for 22 volts. Only the lower portion of the



General Electric immersion heater as used for electro-plating

heater dissipates heat so that it can be used in tanks where the solution level is as much as 10 in. below the top of the tank. It is intended for low temperature heating only.

A NEW exhibition building which is to house the motor truck exhibits at the coming Technical Fair at Leipzig (March 4 to 15) is now under construction. The building will be 374 ft. wide and 492 ft. long and will be entirely without supporting columns or posts in the exhibition space. The nearly flat roof will be carried on seven steel girders which are more than 25 ft. deep but which cannot be seen from the inside or from the outside. The inside height of the hall will be 100 ft. Illumination will be by so-called caterpillar lights which extend all the way across the roof in bands.

NEW DEVELOPMENTS—Automotive

1000-Ton Bliss Press

TO take care of the ever increasing demands made upon power presses for heavy drawing work, the E. W. Bliss Co., Brooklyn, N. Y., has recently designed and built a single-crank, double-action press which weighs 400,000 lb. and has a capacity of 1000 tons divided equally between the blankholder and plunger.

The crankshaft of this huge machine is 18 in. in diameter at the bearings and 21 in. at the pins. It will draw and lift work up to a depth of 11 in.

The press is of tie rod construction in which the entire working strain is taken by four steel tie rods which tie together the crown, bed and uprights and which are so arranged that the inner and outer slides can be locked together to provide a single-action press for very heavy work.

When used as a double-action press the blankholder is operated by long links inside the housing connected to the crankshaft. The

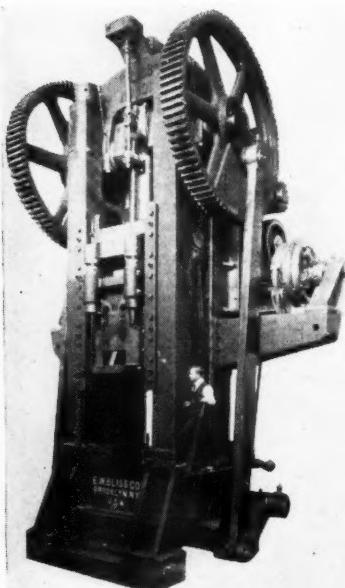
crankshaft, in the bed, is operated by the main gears through a toggle action and has four crank pins, two of which are used to operate the blankholder and two to operate the positive lift-out.

Blankholder adjustment is made by means of four large screws and plunger adjustment by means of a 15 hp. motor mounted on the crown. The machine is operated by a 125 hp. motor and is equipped with triple gears and twin drive.

New Roll Grinder

A SELF-CONTAINED roll grinder with a 24 in. swing and forced feed table lubrication has just been announced by Cincinnati Grinders, Inc., of Cincinnati. The machine is built in 13 different length capacities from 48 in. to 336 in. at two-foot intervals.

The V and flat table ways are flooded with filtered oil pumped



The man standing at the control lever indicates the size of this immense single-crank, double-action Bliss press

from a central tank to the table guides at about 4 lb. per sq. in. pressure and distributed through oil grooves cut on the under side of the sliding table. In draining back to the central tank the oil passes through a settling chamber and a purolator which removes all grit, dirt and sediment.

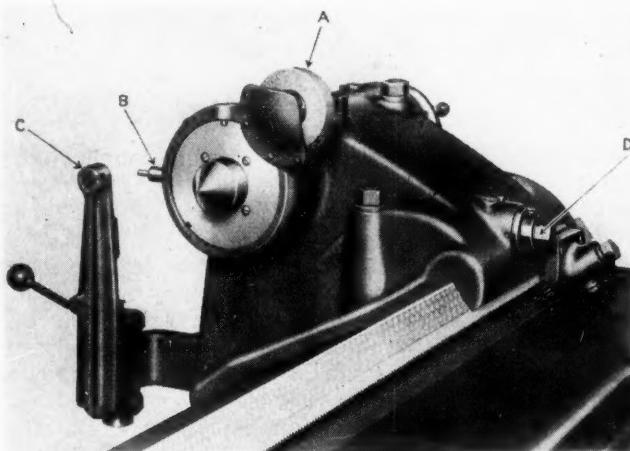
All standard machines are built with single tables but on machines up to 144 in., an upper or swivel table and a lower sliding table can be furnished. This arrangement permits tapers up to 12 ft. long to be ground.

The wheel head is mounted on large V and flat bearings. A 30 hp. motor is flexibly coupled to the main driveshaft. The spindle is driven by a Texrope drive. Openings in both wheel head and bed facilitate inspection of all moving parts.

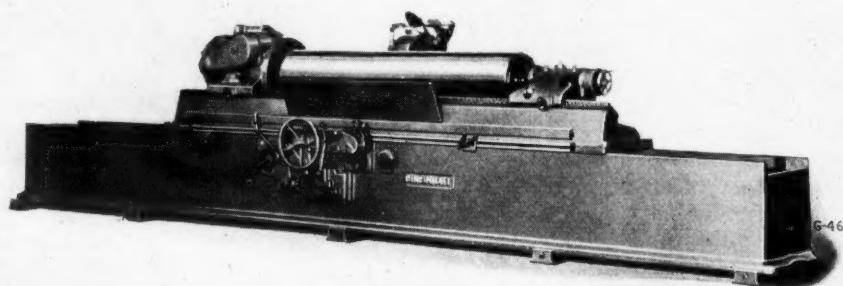
The grinding wheel spindle is mounted in half bearings of bronze alloy, the upper halves acting as safety caps on the spindle. The spindle is automatically lubricated by oil lifted from the reservoir in the wheel slide by means of centrifugal slingers on the spindle.

The spindle is made from a chrome nickel forging heat treated and ground to a high finish and is heavy enough to carry a 12-in. wheel when necessary. End thrust is taken by a double thrust ball bearing readily adjustable.

All the 12 table traverse speeds are obtained through the use of hardened steel sliding gears mounted on



Footstock of new roll grinder. A is wheel truing fixture; B the diamond holder; C the radius truing fixture and D is the set over screw construction for grinding work parallel on single table machines



New Cincinnati roll grinder with centralized control

Parts, Accessories and Production Tools

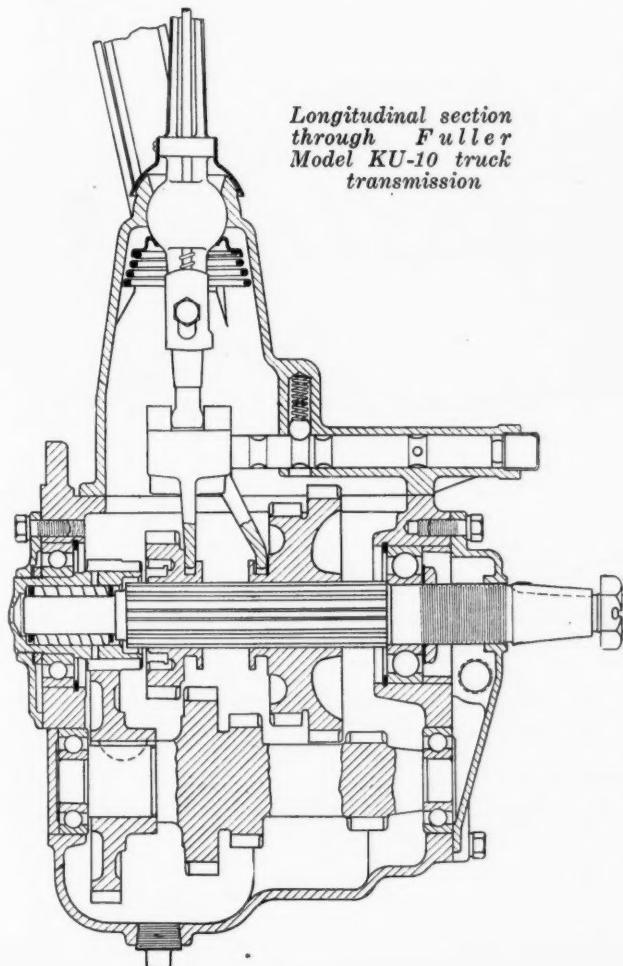
hardened shafts. The gear box is mounted on the back of the grinder bed and is controlled by a single lever from the front of the machine. All levers and wheels controlling movement are grouped within easy reach of the operator. A mirror attachment enables him to see the point of contact between wheel and work without difficulty.

The motor-driven headstock is controlled by a rheostat which operates through a dynamic braking panel. The driving plate has a speed range from 11 to 96 r.p.m. A power-driven center grinder for regrinding work centers is standard equipment.

The centrifugal coolant pump does not require priming and is designed so that its bearings do not come in contact with the water. Detachable guards return spray and waste water to the settling tank.

Fuller Transmission

A FOUR-SPEED transmission for motor trucks, affording an unusually wide range of gear ratios, has been marketed by Fuller & Sons Mfg. Co. of Kalamazoo, Mich. It is designed for use in trucks with four-cylinder engines up to 226 cu. in. piston displacement and six-cylinder engines up to 249 cu. in. piston displacement, of a maximum chassis weight not exceeding



ing 4000 lb. and a rated capacity not exceeding 2 tons. The ratios of the different speeds are as follows:

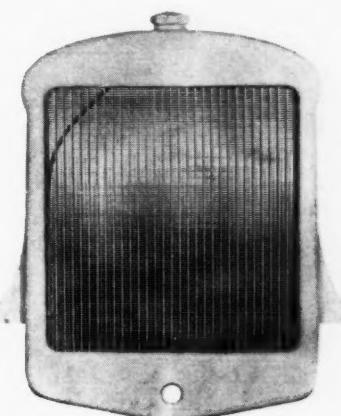
First	6.5-1
Second	3.9-1
Third	2.06-1
Fourth	1-1
Reverse	8.1-1

The transmission is regularly furnished with the Fuller ten-facing multiple-disk clutch, but can be provided with a splined clutch shaft to take either the Borg & Beck or the Long single-plate clutch. Gears and shafts are of 3½ per cent nickel steel, case-hardened. The constant mesh gears are ground for quiet operation. Ball bearings are used throughout, except for the main-shaft pilot, which is furnished with a Rollway roller bearing.

This transmission has been designed to meet an increasing demand for a suitable four-speed transmission which can be used in 1½ and 2-ton trucks, and it provides the low gear ratio on low speed which is now required in connection with a fast axle.

Heavy-Duty Bus Radiator

A NEW heavy-duty bus radiator with cast aluminum shell, pressed brass tanks and rugged tubular core has been placed on the market by the Young Radiator Co. of Racine, Wis. Tubes, header plates and tanks are of unusually heavy construction and where inlet and outlet connections are located, these parts all are reinforced.



Young heavy-duty bus radiator

Tubes are of the lock-seam type and passages are sufficiently large to pass foreign materials and prevent clogging.

The new product is being built in a specialized plant for heavy-duty purposes, in various types and sizes for large and small buses, each unit being engineered for the chassis on which it is placed.

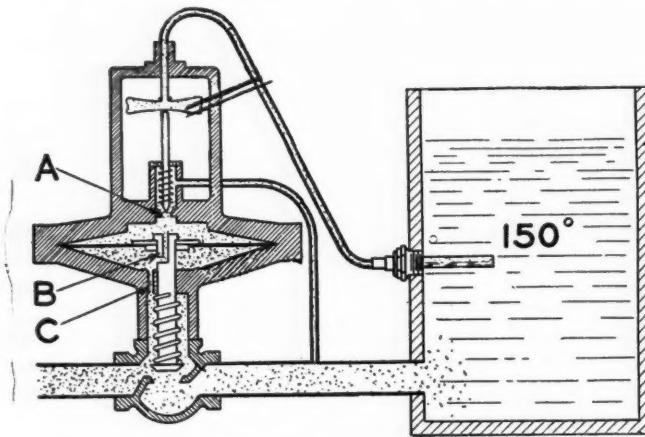
“Tag” Control Valve

A TEMPERATURE and pressure controller which is automatically operated by the steam which furnishes the heat or pressure has been developed by C. J. Tagliabue Mfg. Co., Brooklyn, N. Y. As shown in the accompanying illustration, the controller consists of a thermostat system, a pilot valve and a diaphragm, to which is connected the main steam valve.

Steam is permitted to flow freely into the diaphragm

chamber so that while no steam is permitted to escape from above the diaphragm pressures are equal on both sides of it and there is no force to prevent the valve spring from closing the valve.

Change in temperature or pressure affects the ther-



Tag steam-operated control valve. A is pilot valve with relief opening for steam escape when temperature falls. B indicates the orifice through which steam flows to the upper side of the diaphragm. Steam flows to the diaphragm chamber through orifice C

mostat which operates the metallic bellows and opens the small pilot valve permitting steam to escape from the upper diaphragm chamber. Under this condition the steam pressure on the lower side of the diaphragm becomes sufficient to raise the valve and permit steam to flow through the main line.

Inclosed Circuit Breakers

ROLLER-SMITH CO., New York, has recently developed a complete line of inclosed circuit breakers consisting of three different styles. Type ESF is an inclosed standard type, free handle, and is recommended for all applications where an inclosed breaker of the non-closable-on-overload style is desirable.

Type ES breakers are similar to Type ESF except that they are not of the free-handle type and the handle, instead of being located on the right and outside of the box, projects through a slot in the front cover. Type EI is similar to Type ES breakers except that the breaker itself is the Industrial type instead of the Standard type used in the other two types.

Types ESF and ES are furnished in capacities from 5 to 800 amp., for potentials up to 600 volts; for direct or alternating current; in one, two, three or four poles; with overload, under-voltage and combinations and with instantaneous and time limit trip.

Type EI is furnished in capacities from 5 to 100 amp.; for potentials up to 250 volts; for direct or alternating current; in one, two, three or four poles; with overload and under-voltage and combinations and with instantaneous trip.

Expansion Boring Bars

LARKIN PACKER CO., St. Louis, Mo., has developed a complete line of expansion boring bars and cutters designed to provide accuracy, speed, economy and service. Boring bars are fitted with micrometer adjusting screws, piloted in a hardened and ground, self-centering thrust bearing which controls the movement

of the expansion wedge and insures accurate adjustment of the cutters.

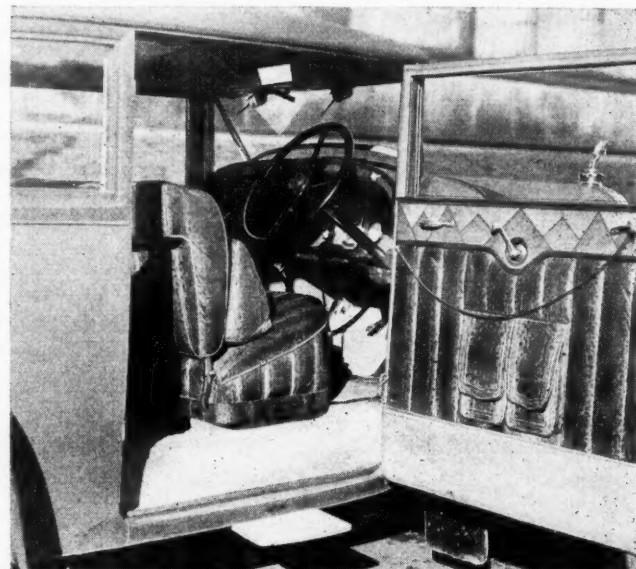
Cutters are fitted to slots of standard dimensions and are quickly adjustable to any size within the range of the bar without circular grinding. Bore accuracy is insured by direct locking, with each cutter held rigidly in the cutter slot by a piloted eccentric locking screw.

All parts are standardized and cutters are interchangeable. When worn beyond expanding limits they can be used in smaller size bars with same slot dimensions.

Ten styles of boring bars are available, including a piloted taper shank bar, a lathe center bar, a bottoming arbor bar, a multiple combination diameter bar, etc. Sixteen sizes, ranging from $1\frac{1}{4}$ to 6 in., are in the line, providing a range of hole sizes from $1\frac{1}{2}$ to $9\frac{1}{2}$ in. in diameter.

Panhard-Levassor Exhibit

THE car pictured here was displayed on the mezzanine floor of the Hotel Commodore during the week of the New York automobile show and attracted a good bit of attention. The chassis is a Panhard-Levassor four-cylinder job with a French horsepower rating of 28, and is said to have a cruising speed of 90 m.p.h.



Special Panhard-Levassor model which was exhibited in New York during show week

The body was designed by Gaston Grummer, is covered with fabric and is lined with Alpina water snake set off by trimmings in "galuchat" or shark hide. Interior fittings are very complete and the wide doors and absence of valance give the car a distinctive appearance.

SOME time ago two Spanish automobile manufacturing concerns, known as Ricart and Espana, were amalgamated and started upon the production of a car known as the Eskualduna. Now, through the initiative of the managing director of the Elizalde firm, a new consolidation has taken place which will bring the Ricart, Espana and Elizalde firms into one corporation. It is planned to manufacture a small six-cylinder car with a $2\frac{3}{4}$ by 4 in. engine. The car will be sold under the name of Apta (initials of the firm name, Agrupacion Productora y Tecnica del Automobile).

Symposium Brings Out Valuable Data on Hydraulic Feeds

Chief advantages in machine tool applications given as flexibility of control, longer cutter life, safety, simplicity and efficiency of metal removed.

By K. W. Stillman

ALTHOUGH the principles underlying the use of hydraulic feeds have been known for many years and have been applied to some types of machine tools for about five years, it is only recently that the hydraulic method has assumed a really important position in machine tool design.

The first applications of hydraulic feeds to machine tools were made to broaching machines and the increased production resulting from this change directed the attention of machine tool designers toward applying the feed to other tools. Grinders and drill presses were designed with hydraulic feeds; lathes and chucking machine makers made limited use of similar equipment, and just recently hydraulic feeds have been successfully applied to milling machines.

At the present time, therefore, hydraulic feeds are available for many types of machine tools used in the automotive industry. In view of their recent development and the fact that relatively little experimental data have been available concerning their operation, the information gathered from the symposium on hydraulic feeds at the recent annual meeting of the A.S.M.E. is of particular interest to automotive production men.

Life of Broach Prolonged

On broaching machines, where hydraulic feeds were first applied, it was brought out at the meeting, the hydraulic feed appears very erratic in operation when compared with the operation of a broach pulled by a screw. This evident unsteadiness caused the hydraulic feeds to be condemned at first. Actual operating results proved, however, that in spite of this variation in the rate of feed, resulting from the flexibility of the hydraulic system, the hydraulic machines were capable of pulling a broach much faster than prevailing types of screw machines and, in addition, the life of the broach was longer with hydraulic feeds.

This unsteadiness of feed rate in hydraulic machines has been, perhaps, the greatest obstacle to be overcome in popularizing them and, according to Walter Ferris, chief engineer of the Oilgear Co., it has been raised because hydraulic feeds have been directly compared with mechanical feeds, whereas the former are quite different in operation and only in the results obtained from the two types should such comparisons be made.

In its simplest form, a hydraulic feed mechanism consists of a pump which delivers oil under pressure to a cylinder in which a piston whose end is connected with the machine part to be moved. The piston is moved backward or forward in the cylinder by operation of valves which impress pressure through the oil to the back or front side of the piston, while pressure and speed are varied by changing the volume of oil delivered from the pump.

Three Types of Pumps

There are three types of pumps commonly used for machine tool drives: (1) Multiple-piston, variable-stroke pumps which are designed to deliver variable amounts of oil at pressures up to about 1000 lb. per. sq. in.; (2) gear pumps designed to deliver a constant volume of oil at constant pressure; (3) combinations of these two types.

The first type had the following characteristics: When set for a particular job the pump delivers a definite quantity of oil to its operating cylinder and the distance the piston is moved is in direct proportion to this quantity. If the resistance to piston movement is low, as in indexing, the oil pressure is low, this pressure increasing as the resistance to motion increases.

Speed control is obtained by varying the volume of oil delivered from the pump, the rate at which the piston moves being directly proportional to the metered discharge of the pump. Also, the piston speed will never exceed the rate corresponding to the fixed discharge of the pump, and changing resistance to piston movement will only raise or lower the pressure behind the piston without materially affecting its speed.

The second type of pump, which delivers a constant volume of oil at constant pressure, is designed to meet the maximum requirements for its particular job. Under normal conditions this pump, usually of the gear type, pushes the piston at a rate of speed corresponding to but a small fraction of the displacement of the pump. The excess oil displaced escapes through a relief valve and returns to the oil pot. This type is said to be particularly suitable for such work as reciprocating grinder tables.

Some of the characteristics of hydraulic feeds are obtained from the experiences of various companies which have been experimenting with and actually ap-

plying this type of feed to various kinds of machine tools for many years.

While hydraulic feeds have not been applied to all types of machine tools, results achieved on those to

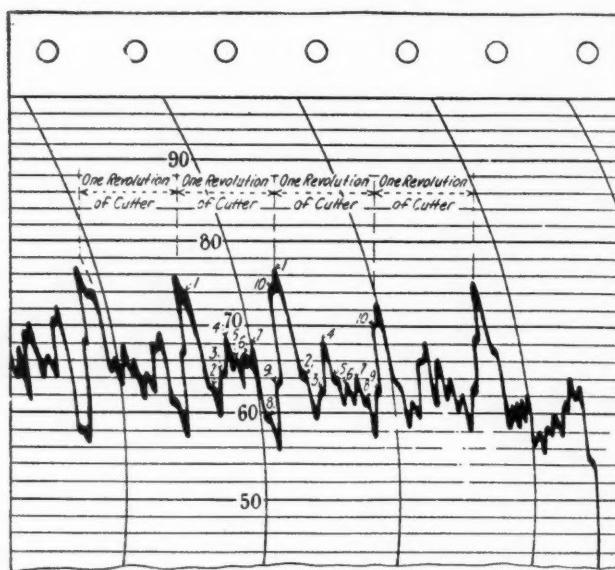


Fig. 1. Graphic-wattmeter record of milling machine cut made by Cincinnati Milling Machine Co., to show load variations due to successive impacts of cutter teeth and eccentricity of cutter

which they have been applied have been generally satisfactory. Proponents of hydraulic feeds believe their experiments have definitely proved that less force is required to pull a broach in a hydraulic machine and that tool life is longer than with other types of broaches.

Engineers of the Cincinnati Milling Machine Co. found these things to be true with milling machines equipped with hydraulic feed and are inclined to give credit to the greater flexibility of the hydraulic feed.

They point out that the formation of a chip is by no means a continuous process involving a constant pressure on the tool but that there is a definite cycle of pressure for the formation of each chip element. Under actual cutting conditions these load variations on the tool and machine occur at very high speeds—possibly as high as 1000 per second. There are also load variations as each tooth enters the work and another variation caused by the eccentricity of the cutter. Fig. 1 shows the results of these last variations.

In mechanically fed machines there is relatively less flexibility to yield against these load variations so that the maximum instantaneous loads may be very high. Due to the compressibility of the oil in hydraulic mechanisms and the relief afforded by leakage of oil past the piston a more uniform pressure is applied by them.

Another point brought out by engineers who have been working with hydraulic feeds is the slip occurring with this type of feed. When a mechanical feed moves a tool from a light cut through a heavy cut and

then back to a light cut, for example, there is no evident means of compensating for the greater force required by the heavy cut. Geared feeds do not slip so that the theoretical feed rate will be maintained for the entire cut regardless of the variations in resistance to the progress of the tool. Whatever slowing up may occur when making the heavy cut represents the flexibility of feed rods and other elastic parts, which must be returned and the theoretical feed rate exceeded when the light cut is again encountered.

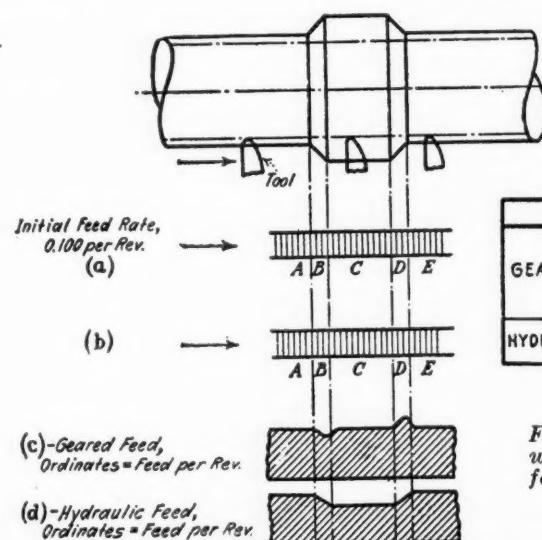
With hydraulic feeds leakage occurs past the piston and other running fits of the pump in proportion to the pressure or resistance to be overcome, so that the volume of oil actually delivered to the cylinder decreases as pressure increases, with a corresponding decrease in feed rate. Thus, in machining the same type of work as mentioned before, when the heavy cut is reached the pressure will increase, increasing leakage of oil past the pistons and slowing up the speed of the piston for the duration of the heavy cut. When the light cut is reached again, the pressure and leakage decrease and the speed returns to its normal rate without any backlog to be taken up. These conditions are illustrated in Fig. 2, a chart prepared by the Oilgear Co.

Another possible explanation of the greater ease with which hydraulic drives apparently perform a cutting operation is in the rapid succession of impulses received from the pump plungers. Although these occur at rates from 100 to 200 cycles per second and the rate of flow of oil from the pump is practically uniform, the impulses are distinctly noticeable on an unprotected pressure gage. Mr. Ferris suggests the analogy between this fact and the ability of a man, by means of little hammer blows, to push a chipping tool through a cut which otherwise would require a planer.

Since the intensity of these impulses varies with the pressure, low pressures must be used for such work as grinding in order to avoid vibrations which might mar the work. This is one reason why gear pumps, which are inherently low-pressure pumps, have been popular for grinder work although experimentation is proceeding toward the development of low-pressure, variable-capacity pumps.

Another advantage given for hydraulic feeds is the control they permit over operating conditions. A pressure gage attached either to the feeding or driving mechanism conveys important information to the machine operator, such as dulling of tools, which would cause a pressure rise. Various other control and safety devices are made possible with hydraulic drives.

The most popular feature of hydraulic drives appears to be their flexibility. Practically any rate of feed may be selected and tried out on the work. This



APPROXIMATE FEED RATES

	A	B	C	D	E
GEARED	0.100	0.100 Reducing to 0.080	0.080 Increasing to 0.100	0.100 Reducing to 0.120 then Reducing to 0.100	0.100
HYDRAULIC	0.100	0.100 Reducing to 0.075	0.075	0.100 Increasing to 0.100	0.100

*Fig. 2. Comparison of feed rates with mechanical and hydraulic feeds with varying depth of cut.
Prepared by Oilgear Co.*

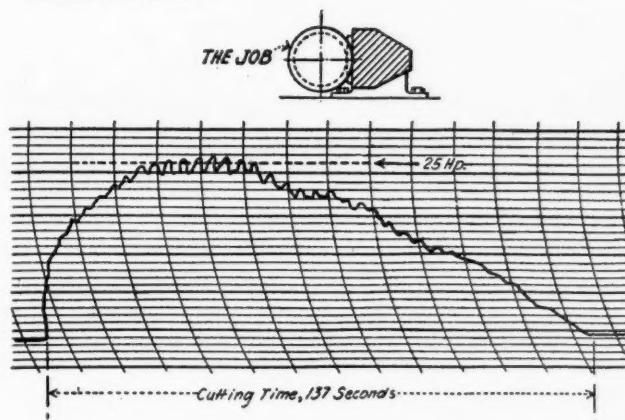


Fig. 3. Power chart for cutting with constant feed rate

is particularly advantageous because the present experience indicates that many established rules for cutting feeds and speeds accepted for machines with mechanical drives must undergo revision when hydraulic equipment is used. That this may be necessary is shown by the fact that broaching speeds, for example, have been increased from 4 to 5 ft. per. min., with mechanical feeds, to from 12 to 30 ft. per min. with hydraulic feeds. Hydraulic milling machines now do a heavy form milling job at 10 in. per min. which was performed no faster than $2\frac{1}{2}$ in. per min. with mechanical feed.

Some very interesting work has been done by the Cincinnati Milling Machine Co. in connection with the development of its Giant Hydromatic milling machine.

Among the characteristics which have been obtained by the application of hydraulic feed are reciprocation in either direction at normal feeding rates, and at rapid traverse rate; positive control of feeding movement regardless of the direction or amount of the resultant cutting forces; a locked condition of the table when in the stopped position, thus rendering it incapable of movement under the action of the cutter; accurate reversal of the table under any cutting condition; and a readily controlled acceleration or deceleration of the feed rate during the cut.

The design employed to gain these ends is in principle similar to other hydraulic feeds but differs in details, particularly in the fact that the feed rate is determined not by the amount of oil fed to the cylinder but by the amount of oil permitted to escape from the discharge end of the cylinder through the pump.

The list of advantages claimed for the use of hydraulic feeds on milling machines are divided into five parts: Flexibility of control, longer cutter life, efficiency of metal removed, safety and simplicity.

The first has already been referred to as being a most important feature of hydraulic feeds on any type of machine. In the Cincinnati machines any desired

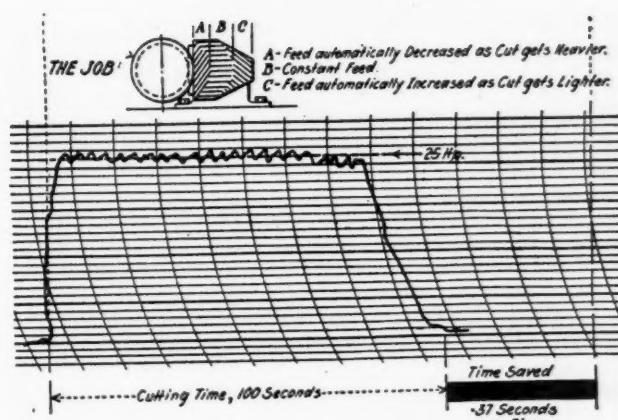


Fig. 4. Power chart for cutting same job as shown in Fig. 3 but with cam controlled variable feed to give constant metal removal for entire job. Cincinnati Milling Machine studies

feed rate from zero to the maximum can be obtained, even while the machine is in motion.

Feed changes during a cut may be made automatically. Any desired cycle of feed and quick traverse in either direction, together with automatic stop or feed change at any point, is possible. Or, milling can continue in any direction until the table encounters a stop, when it dwells to permit the cutter to clear itself and automatically returns at rapid traverse rate.

The item of automatic feed change during a cut is of great value since it permits maximum cutting efficiency on a piece where the depth of cut is not uniform throughout its length. Feed changes may be controlled by a cam arranged to adjust the feed rate to the proper amount for each table position. Figs. 3 and 4 show power charts for such a job when performed by mechanical and hydraulic feed machines.

The influence of hydraulic feeds upon length of cutter life has also been referred to, but some studies made by the Cincinnati engineers demonstrate this influence more vividly. In Figs. 5 and 6 are shown graphic-wattmeter records of two slotting cuts made under the same conditions except that Fig. 5 was made with a mechanical feed machine and Fig. 6 with a hydraulic feed machine. The power variation due to cutter eccentricity was evidently considerably less for the hydraulic feed machine. Other studies showed that while the mechanical-driven table moved at a practically constant rate, the hydraulically-driven table definitely yielded a measurable amount under each successive tooth impact and for each revolution of the cutter.

These studies associate the yielding of the table with the reduction in power variation per revolution of the cutter and so tend to bear out the theory that the increase in cutter life with hydraulic feeds is because of the yielding drive furnished in place of the less flexible drive obtained from mechanical feed.

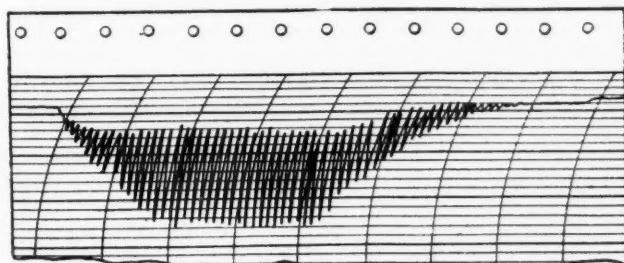


Fig. 5. Graphic-wattmeter record of slotting cut on mechanical feed milling machine

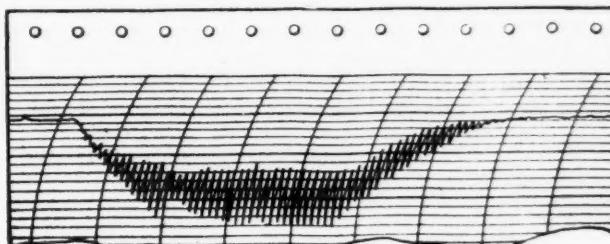


Fig. 6. Graphic-wattmeter record of same cut shown in Fig. 5 but with hydraulic feed machine. Cincinnati Milling Machine studies

AUTOMOTIVE NEWS SECTION INDUSTRIES

Philadelphia, Pennsylvania

January 28, 1928

Weather Stimulates Sales; Dealers Are Stocking Up

PHILADELPHIA, Jan. 28—Aided by good weather for the season, the automobile market has been opening up fairly satisfactorily in most sections of the country. Factory shipments as yet, however, are in the main for stocking dealers with new models in preparation for the spring selling season.

Probably the most intensive selling campaigns in the history of the industry are under way with the object of obtaining for each factory its share of what is generally expected to be a very good market, so far as volume is concerned. Whether profits will be correspondingly good remains to be seen, but with prices down in the small car field the need for large volume production to maintain profit margins was never more keenly felt.

The dealers' main problem, it is felt, is to reduce trade-in allowances to conform with the lower prices of new cars. It is too soon to say whether this is being done but the difficulty of the job is generally realized, in view of the keenness of the struggle for new business. The advent of the new Ford, has, if anything, made low-priced used cars harder to sell and serves to complicate the situation.

Despite troubles in a few of the foreign markets, the export outlook is considered sound, and foreign sales should help a good deal toward maintaining production programs at the factories.

Stewart-Warner Earnings \$8.67 a Share in 1927

CHICAGO, Jan. 26—Net income of \$5,201,053, after charges and Federal taxes, equivalent to \$8.67 a share on 599,990 no-par shares of capital stock, is reported by the Stewart-Warner Speedometer Corp. for the year ended Dec. 31. This compares with \$5,108,886, or \$8.51 a share, in 1926.

Net profit for quarter ended December 31, 1927, was \$1,011,421, after charges and federal taxes, equivalent to \$1.68 a share, comparing with \$1,627,707, or \$2.71 a share, in preceding quarter, and \$300,540, or 50 cents a share, in December quarter of 1926.

Jordan Abandons Merger Plans

CLEVELAND, Jan. 26—Planning an aggressive program for the first half of 1928, following the abandonment of all merger negotiations regarding the company, the Jordan Motor Car Co. directors have decided to omit the quarterly dividend of 1½ per cent due at this time on the preferred stock.

S.A.E. Opens Annual Meeting at Detroit

Stock Car Racing Discussed at Opening Session—More Than 1000 Delegates

DETROIT, Jan. 28—One of the most interesting annual meetings ever held by the Society of Automotive Engineers got under way at the Book-Cadillac Hotel, Tuesday, Jan. 24, with a session devoted to stock car racing. Participating in the discussions were such luminaries as F. E. Moskovics, T. J. Little, Jr., Capt. Eddie Rickenbacker, H. C. Snow, Paul Dumas and James Crawford.

Nearly 800 members and guests registered for the meeting.

The session which developed the greatest interest was the tire simplification symposium. At this session a proposed standardization of rim sizes, reducing these in number to a total of six, was offered for consideration by the Tire and Rim Committee and after a heated discussion was approved for consideration by the Standards Committee which later adopted the specification as a recommended standard. Rim sizes include 18 by 4, 19 by 4, 19 by 4½, 20 by 4½ and 20 by 5. The only 21 in. wheel rim continued is the size used by Ford and Chevrolet, which in itself was the reason for its continuance.

Tuesday evening was taken up by a business session. The feature on Wednesday was a tire simplification session, at which the leaders of the automotive and tire industries tried to work out a solution to the present problem presented by the multiplicity of tire sizes demanded by cars now in service. The Standards Committee held its session Wednesday afternoon, and that evening the delegates turned out in large numbers for the engine session, which was presided over by W. G. Wall.

The feature of the Thursday program was the research session, in charge of S. W. Sparrow. J. A. C. Warner took over the gavel for the afternoon meeting. A production session was held in the evening.

"Howard" is Name of New Export Car

DETROIT, Jan. 26—An interesting development in the automobile world is the announcement here of the formation and incorporation of the "Howard," a motor car engineered and built expressly and only for overseas requirements.

Executives of the corporation state that a complete line of six and eight-cylinder motor cars, also a line of truck chassis, ¾ to 1½-ton capacity, will be marketed, all subject to distributor specifications for equipment.

It is understood that a former executive of a prominent American motor car company is backing the project.

Hearings Are Begun on Federal-Aid Bill

WASHINGTON, Jan. 26—Hearings on the Dowell bill, which provides for \$75,000,000 a year for Federal aid highway construction for the fiscal years of 1930 and 1931, were begun this week before the House Committee on Roads. Its passage was urged by representatives of the National Automobile Chamber of Commerce, the Association of State Highway Officials, the American Motorists' Association, the American Automobile Association and the National Grange.

Congressman Scott Leavitt of Great Falls, Mont., filed a brief with the committee, asking for favorable consideration of the Colton bill in behalf of relief for Western States. The bill provides that for highway construction within public lands, the Federal allotment may be increased to any percentage up to and including the whole cost thereof.

Gain in Employment

WASHINGTON, Jan. 26—Automobile manufacturers report an increase of 4.3 per cent in the number of employees during December, according to the bureau of labor statistics of the Department of Commerce. The bureau's compilation shows that employment in the 54 chief manufacturing industries, in December, decreased.

Sloan New Pullman Director

Alfred P. Sloan, Jr., president of General Motors Corp., has been elected a director of Pullman, Inc.

Wire Wheel Policies Outlined by Jackson

Costs Won't be Increased, He
Says, Following Decision
on Patent Case

BUFFALO, Jan. 26—H. Gardner Jackson, president of the Wire Wheel Corp. of America, in commenting today on the Cowles wheel patent case decision which was affirmed by the seventh district, Court of Appeals, in Chicago, on Dec. 1, outlined the future policy of his company.

Inasmuch as the Wire Wheel Corp. is sole licensee of the Cowles wheel patents owned by the Packard Motor Car Co., Mr. Jackson's statement is of considerable interest. The Cowles patents cover wheels demountable at the hubs and interchangeable from front to rear. The defendant was the Willys-Overland Co.

"The policy of the Wire Wheel Corp. of America as a result of this decision," said Mr. Jackson, "will be one of negotiation and cooperation with automotive manufacturers desiring to use wheels under this patent, rather than to resort to legal action to sustain our position resulting from the decision. Such legal action might work a hardship on the automobile industry."

Rather than take the position of increasing prices, says Mr. Jackson, the policy of the Wire Wheel company will be exactly opposite.

"We believe that the decision in this patent case," said Mr. Jackson, "will result in an increased volume of business for the Wire Wheel Corp. which will mean a decrease in manufacturing costs. We are glad because of that fact to be able to pass on to the motor car manufacturer from time to time a reduction of price made possible by this reduction of manufacturing costs."

Pending further developments and study of the legal situation, executives of other wheel manufacturing companies were disinclined to give their views of the case.

Bumper Patent Suit Won by Chevrolet

WASHINGTON, Jan. 26—On appeal, the Chevrolet Motor Co. and the General Motors Corp., this week were exonerated in a suit brought against them by the Central Brass and Fixture Co. for alleged infringement of patents. The lower court held that the Brass and Fixture Company's patents, involving the bumper used on the Chevrolet, had been infringed. The Court of Appeals, however, that the Brass and Fixture Company's patent was not valid and therefore that there was no infringement by Chevrolet or General Motors.

It ordered the decree of the District Court, holding the patent valid, reversed. The patent revolved around the

question as to whether or not the thickness of an ornamental bar of the automobile bumper is patentable. The higher court holds that it was not.

General Motors Export Personnel Changes

NEW YORK, Jan. 27—W. G. Guthrie, formerly with the Peerless Motor Car Co., has recently been appointed by the General Motors Export Co. to the staff of the Regional Director for Europe. Mr. Guthrie sailed Jan. 14 for London.

F. E. Mengel, formerly with Dodge Brothers, Inc., has joined the advertising division of General Motors Export Co.

H. M. Clary, formerly of the Oakland Motor Car Co., has joined the General Manufacturing Co. of General Motors Export Co. on Jan. 9.

F. L. Swanbeck, formerly of the Oakland Motor Car Co., has joined General Motors Export Co. and sailed for Berlin Jan. 19 to assume his duties on the staff of the Regional Director for Europe.

R. C. Williams, of General Motors Export Co., sailed Jan. 14 for Montevideo, where he will become a member of the staff of the Regional Director for South America.

V. D. Gortner, formerly with the Buick Motor Car Co., has become a member of General Motors Export Co. and sailed Jan. 14 for Buenos Aires, where he will take up his duties as Duco specialist.

N. C. 1927 Sales 40,261

RALEIGH, N. C., Jan. 26—New automobiles registered in North Carolina in 1927 numbered 40,261 as compared with 65,285 registered in 1926, according to the records of the State Department of Revenue here. W. C. Spruill, of the department, attributed the decrease of last year principally to the withdrawal of the Ford from the market, only 9455 new Fords being sold in this state in that period.

Registrations of new cars of the leading makes were in number as follows: Chevrolet, 13,716; Ford, 9455; Buick, 3032; Essex, 2799; Chrysler, 2115; Dodge, 1989; Pontiac, 1890.

Outlook Good in England

WASHINGTON, Jan. 26—American and Canadian manufacturers of automobiles contributed more than 50 per cent of the cars and chassis imported into the United Kingdom during 1927, according to a report to the U. S. Department of Commerce. French manufacturers ranked second, and Italian third. The outlook for American sales in England during 1928 is regarded as being good by the department's representative in London.

Martin Parry Passes Dividend

NEW YORK, Jan. 26—Martin Parry Corp. has omitted action on the regular quarterly dividend of 50 cents a share due at this time.

Business in Brief

Written exclusively for AUTOMOTIVE INDUSTRIES by the Guaranty Trust Co.

NEW YORK, Jan. 26—A firming of time money rates, lower rates on call money, a reduction of brokers' security loans, further sale of government securities by the Federal Reserve banks and an upturn of stock prices were the principal financial developments of the past week. Domestic bond prices reached a new high point this week, while quotations of foreign issues tended to ease off slightly. Announcement last week that the Bank of France had reduced its discount rate to 3½ per cent, the lowest since 1914, was a reflection of the plethora of short-term funds available in the French money market. Wholesale trade has improved in the past week, though retail distribution continues to be hindered by unseasonably warm weather. Total sales of 30 chain store systems during 1927 amounted to \$1,109,826,807, which represents an increase of 16 per cent over 1926 sales of \$956,770,997.

FREIGHT CAR LOADINGS

Railroad freight car loadings in the week ended Jan. 7 rose, numbering 754,062, as compared with 679,600 in the previous week, 933,890 in the corresponding period last year, and 907,622 two years ago.

PETROLEUM OUTPUT

Production of crude petroleum declined slightly during the week ended Jan. 14, average daily output being 2,373,100 barrels, which compares with 2,379,050 barrels a week earlier and 2,391,000 barrels in the corresponding period a year ago.

FISHER'S INDEX

Professor Fisher's index of wholesale commodity prices advanced fractionally last week to 95.7, as against 95.1 in the preceding week and 95.2 four weeks earlier.

FEDERAL RESERVE REPORT

Bank debits to individual accounts, as reported to the Federal Reserve Board for the week ended Jan. 18, were 10.6 per cent below the level of the previous week but 12.7 per cent greater than the amount reported in the like period last year.

For the same period the Federal Reserve banks reported that reserves rose \$8,300,000. Discounts declined \$27,100,000, open market purchases \$23,500,000, U. S. Government securities \$45,900,000, note circulation \$55,800,000 and deposits \$45,800,000. Member banks reported that in this same interval investments increased \$15,015,000, while loans and discounts declined \$116,498,000, demand deposits \$153,192,000 and borrowings from the Federal Reserve banks \$23,167,000.

Time money rates were higher last week at 4½ to 4¾ per cent, while rates for commercial paper remained unchanged at 3¾ to 4¼ per cent.

Automotive Orders Help Steel Mills

Other Consumers Lagging and Demand as Whole Leaves Room for Improvement

NEW YORK, Jan. 28—While the flow of sheets, strip-steel, cold-finished and alloy steel bars into automotive consumption has attained considerable momentum, acceleration of the steel demand from other consuming industries has by no means been as pronounced. The railroads have contracted for long-deferred rail requirements and have opened negotiations for moderate equipment orders, but steel demand as a whole leaves still much room for improvement.

Some finishing mills, catering to automotive demand, are operating 50 per cent more of their capacity than they did two months ago, but no such gains have been scored by the industry as a whole, improvement over the low operating point of a few months ago ranging probably from 15 per cent upward.

While the \$1 per ton advance in the leading interest's quotation on hot-rolled steel bars and plates has been followed by the "independents," the immediate object of this move is to "smoke out" specifications from large consumers at the \$1.80 price which has been in force until now. Some of the large consumers have just about cleaned up the steel bars which they bought at prices under \$1.80. The open market price of \$1.85, Pittsburgh, now established, will, however, apply to the current requirements of ordinary consumers, and it is not likely that it will meet with much resistance. Producers contend that the demand has improved sufficiently to warrant this slight upward revision in price, and that further moderate marking-up must be anticipated by consumers, if the trend of steel consumption continues in an upward direction.

The market for cold-finished steel bars has grown stronger as the result of the higher asking prices in the hot-rolled market. Makers of cold-rolled strip-steel have advanced their base price \$3 a ton to \$3.15, Pittsburgh or Cleveland, subject to a discount of \$5 per ton on orders of 6000 lb. and over for one size and temper ordered for shipment at one time, making the minimum price \$2.90 base. Orders under 2000 lb. carry the usual extra charges. Body builders and parts makers are specifying freely against old contracts. Automotive alloy steels are in much better demand, and prices rule firmer.

Pig Iron—Foundry and malleable iron continues to move in single carload lots to automotive foundries, the larger ones being adequately protected by contracts. The market rules steady.

Aluminum—Although automotive demand is very much in evidence, even the larger

Ford Tank Position Increases Insurance

NEW YORK, Jan. 21—A. J. Donohue, assistant manager of the National Automobile Underwriters Conference, this week denied there was any basis of fact in the rumor that underwriters have refused to cover the new Ford cars on account of the position and construction of the gasoline tank. He said this position has resulted in an increase in rates due to the fact that in case of fire the possibility of total loss is increased. This position, however, does not increase the chance that fire will break out and there is no real reason for refusing to insure the new Fords.

consumers prefer to buy only against current needs. New York importers have considerable 1928 business under negotiation. In some quarters it is thought that the recent reduction in the price of virgin metal has caused numerous consumers to curtail the use of secondary metal. Jobbing foundries find it more and more difficult to make both ends meet in accepting orders for automotive castings at the prices at which these can be obtained from integrated aluminum specialists. The market generally is unchanged and steady.

Copper—Producers give the market the necessary support whenever there is danger of prices melting away under lack of domestic demand. Custom smelters have recently cut fractionally under producers' prices. Demand for automotive brasses is active, but individual orders are rather small.

Tin—Following sharp breaks, the market recovered. Consumers failed to take advantage of recent bargain prices, preferring to buy only their ordinary requirements.

Lead—Offerings of lead in the Middle West at \$1 per ton under the going market price temporarily dislocated the market, but a better tone has since made itself felt.

Zinc—Although prices continue low, consumers seem to be holding off.

Ships Will Handle Unboxed Vehicles

Trans-Atlantic Lines Promise Cooperation to Reduce Shipping Costs

NEW YORK, Jan. 24—Shipping automobiles abroad unboxed is spreading rapidly, according to a report of the National Automobile Chamber of Commerce, giving the results of a conference it has been holding with the principal trans-Atlantic steamship line executives. While this method of handling automobiles is by no means new, it has recently received marked impetus in trans-Atlantic shipments. Ships operating on the Great Lakes have been handling great quantities of automobiles in this way for years, showing a steady increase from 55,499 in 1924 to 124,377 in 1927. With the increase in local competition in foreign countries, European dealers have been keen to take advantage of savings made possible by this method.

The cost of boxes for automobiles averages \$65 each. There is the additional cost of disassembling at the factory, unpacking and reassembling abroad and additional lighterage and drayage. Duty is also assessed on the cost of the boxes.

While unboxed cars present problems to trans-Atlantic steamers accustomed to handling all merchandise in boxes, the magnitude of automobile shipping is so great that steamship executives have determined to consider carefully providing the proper facilities.

Alfred H. Swayne, vice-president, General Motors Corp., has headed the Automobile Chamber group participating in these meetings, with John N. Willys (Willys-Overland); William E. Metzger (Federal); P. G. Findlay and T. Y. Newman (Dodge Bros.); J. E. Fields and G. F. Mooney (Chrysler); F. R. Lackey (Studebaker); Alfred Reeves, G. F. Bauer, J. V. Lawrence and J. S. Marvin (N.A.C.C.).

Hudson Earns \$9.04 Per Share in 1927

Striking Recovery Made from Previous Year

NEW YORK, Jan. 23—Hudson Motor Car Co. earned net income of \$14,431,256 in 1927, after depreciation, interest and Federal taxes, equal to \$9.04 a share on 1,596,660 shares of capital stock, against net income of \$5,372,874, or \$3.36 a share in the 13 months ended Dec. 31, 1926.

Hudson's gain during the year was therefore one of the most impressive registered in the industry and marked the complete success of the new models in colors introduced early in the year.

The recovery was the more notable in view of the difficulties experienced during the year by many competitors in the struggle to maintain profits at a reasonable level.

Higher earnings were accompanied by a betterment in the financial condition of the company as reflected in the balance sheet at the end of the year. Current assets on Dec. 31 totaled \$30,839,321, against \$21,561,395 at the end of the previous year, and current liabilities of \$8,399,449, compared with \$7,340,772. Cash and treasury notes were \$13,285,951, against \$10,463,385. The gain in net working capital was \$8,219,219.

M.A.M.A. to Meet in Chicago Next Week

Newly-elected President Will Talk on "What's Ahead for 1928"

NEW YORK, Jan. 24—The Motor and Accessory Manufacturers Association is to hold a general member meeting in connection with the Chicago show, at the Hotel Stevens, Thursday evening, Feb. 2. J. M. McComb, newly elected president, will speak on "What's Ahead in 1928 for the Accessory Manufacturer."

The meeting, it is expected, will be largely attended by members from the Middle West, particularly those who were members of the former Automotive Manufacturers Association, which had headquarters in Chicago and was recently merged with the M. and A. M. A.

Edward Payton, market analyst for the National Automobile Dealers Association, will also speak, taking as his subject, "Channels of Distribution for the Automotive Accessory Manufacturer."

The meeting is being arranged by a committee of former A. M. A. members, consisting of Noah Van Cleef of Van Cleef Bros. Co.; C. C. Sechrist of the Victor Mfg. Co.; F. W. Beier of the Weidenhoff Products Co.; W. R. Green of the International Stamping Co., and former manager of the A. M. A., and Ben Koral of Edelmann & Co.

There will also be a meeting of the shop equipment group of the M. and A.M.A. at the Stevens at noon, Wednesday, Feb. 1, at which R. W. Procter, chairman of the Shop Equipment Committee, will preside.

Parts Makers Organize New Warehousing Chain

CLEVELAND, Jan. 26—Leading manufacturers of service parts have organized an independent concern called Automotive Parts Warehousing, Inc., with main offices at 1023 National City Bank Building, Cleveland. This organization is an outgrowth of a warehousing plan followed by several of the larger service parts makers and the details have been worked out in actual practice over a period of several years. Officers of the new venture include C. M. Burgess of Burgess-Norton, president; L. A. Dall, vice-president and treasurer, and W. F. Decker, secretary and general manager.

The plan supplies distribution points under the management of experienced men, who are bonded, to provide for the quick delivery of parts to the jobbing or retail trade. The service is rendered at a fixed charge per month, based rather on the amount of warehouse space occupied than on the volume of business done.

Stolen Car Market Killed by Used Cars

NEW YORK, Jan. 25—Automobile thefts during 1927 showed no material increase while recoveries showed a marked improvement, according to C. M. Martindale, secretary of the Home Insurance Co. of New York. The improvement in recovery is due, he said, partly to increased efficiency on the part of the insurance companies and also to the fact that a larger number of thefts are made by joy riders who steal a car for an evening's pleasure. This, in turn, is partially due to the comparatively glutted condition of the used car market which makes the profit available from the disposal of stolen cars incommensurate with the risk involved.

Daimler-Benz to Sell on Time-Payment Plan

WASHINGTON, Jan. 26—The Daimler-Benz A. G. Automobile Manufacturing Co. of Germany has announced that, effective at once, it will sell its products on the time-payment plan. The purpose of this, the U. S. Department of Commerce is advised by its representative at Stuttgart, is to stimulate sales. The department is further advised, however, that this plan of instalment buying is not likely to be a success as, "due to the heavy taxes on automobiles, buyers are generally restricted to a class who are able and willing to pay cash upon delivery of the car."

One of the unique features of the plan, from an American standpoint, is that the title to the car will pass to the purchaser upon the payment of the first cash instalment. The plan of the company is to sell for 30 per cent cash and the balance over 18 months.

Liege to Have Speedway

PARIS, Jan. 12 (*by mail*)—Work is expected to begin at an early date on the construction of an automobile race track on the grounds of the old citadel, at Liege, Belgium. The land necessary for this construction has been given free by the town of Liege. It is stated that a sum of 3,000,000 Belgian francs has been guaranteed for the construction of the track, and that one of the leading Belgian automobile firms has contributed 100,000 francs.

WASHINGTON, Jan. 26—The world's production of petroleum in 1927 totaled 1,254,000,000 barrels according to figures announced by the Bureau of Mines. Of this production, 72 per cent was produced in the United States.

Feel That Present Brakes are Adequate

Majority of Factory Executives Doubt State Laws Would Survive Test

DETROIT, Jan. 26—Interest in the dual brake situation was revived here this week following the announcement by Henry Ford that he is mounting a separate parking brake on the Model A cars. While a number of states have had the law requiring two separate sets of brakes on cars for many years, the fact that no action has been taken previously on these laws in the way of refusing registration to such cars as are not thus equipped, leads many automobile manufacturers to believe that the situation is not serious.

Although it is figured that more than 25 per cent of the automobiles at present produced do not comply with the letter of the law, the stand taken by the majority is that the modern brake is so fool-proof that an additional brake is superfluous. In one type of brake especially it would be necessary to break the pedal or the central cross shaft in two places simultaneously in order to put all four-wheel brakes out of commission, and yet the letter of the law might require an additional set of brakes for cars equipped with this hook-up.

Among the executives of automobile companies who would be affected by enforcement of the laws requiring two separate sets of brakes, who have checked into the matter in considerable detail, the consulting engineer of one large independent manufacturer was in conference last week with Commissioner of Motor Vehicles Eynon of Pennsylvania. As a result of this conference this automobile company feels that a legal interpretation of the present law would have to be made in most states before rigid enforcement would be possible.

With such legal interpretation it is quite possible that the law would be invalidated regarding many types of construction used at present, in which breakage of brake rod or cable or cross shaft, etc., does not affect the operation of the entire braking system.

Want More Hudson Tunnels

NEW YORK, Jan. 25—Two additional tunnels under the Hudson River, one running from West 38th Street to Weehawken and the other from West 57th Street to Weehawken, are urged in a letter made public by the Fifth Avenue Association. The association points out that these tunnels are necessary to prevent paralysis of business traffic congestion in the Fifth Avenue region, and that they would also provide links in the plan of the Port Authority to develop freight terminals and distribution facilities.

Men of the Industry and What They Are Doing

Foster Retires Feb. 24 from Gabriel Snubber

Claude H. Foster will retire as chairman of the board of directors of the Gabriel Snubber Mfg. Co. on Feb. 24 and will relinquish voting control of the company, according to an announcement by George H. Ralls, president. Although this retirement is in formal fulfillment of an earlier agreement, it has been known generally in the industry that Mr. Foster abandoned business cares with the reorganization of the company on April 24, 1925, when new shares were offered at public sale. Mr. Foster has shown that his intention to retire from active business was genuine and he has been enjoying a real holiday.

Under the agreement, Mr. Foster was to retain control of voting for three years, at the end of which he was to dispose of his holdings to the managing employees, Mr. Ralls, Rudolph J. Ketz and David Benjamin. The stock transfer has just been completed.

Davey Chosen to Head New Empire Steel Corp.

W. H. Davey, president of the Mansfield Sheet & Tin Plate Co., was chosen president of the new Empire Steel Corp. at an organization meeting Jan. 23. The new combine takes in the Empire Steel Co. of Cleveland; the Thomas Sheet Steel Co., Falcon Steel Co., and Waddell Steel Co., all of Niles, Ohio; the Mansfield Co., and the Ashtabula Sheet Steel Co. of Ashtabula, Ohio. Total assets are \$20,000,000 and it controls 61 rolling mill units.

Attend Cuba Conference

George F. Bauer and John V. Lawrence of the foreign trade committee of the National Automobile Chamber of Commerce will sail Feb. 11 to attend the highway conference in Cuba. John N. Willys, chairman of the foreign trade committee, will be the official delegate to this conference. Following the conference Mr. Bauer will visit a number of South American countries in the carrying out of the promotion program of the American automotive industry.

Dessecker Named Director

Executive changes are announced at Lambert Tire & Rubber Co., with J. W. Dessecker elected director in place of C. J. Arnold, resigned. Mr. Dessecker also was made secretary and treasurer.

Gets Post in Antwerp

R. Harrison, body shop specialist, sailed Jan. 21 on the S.S. Arabic for Antwerp, where he will join General Motors Continental S/A as body shop superintendent.

Talk of Competition Depreciated by Reeves

DETROIT, Jan. 26—Deprecating the tendency to exaggerate competitive conditions among automobile manufacturers, Alfred Reeves, general manager, National Automobile Chamber of Commerce, last night told members of the Michigan Automotive Trade Association that the industry is not likely to see competition reach a point that is unsound or unprofitable.

"There has been a great deal of talk about competition in the newspapers and magazines," said Mr. Reeves, "and we must always expect this because our industry is so much in the public eye and the people are familiar with the different makes of automobiles and the changes and developments therein. Actually competition is no greater here than in many other lines of products such as clothing, where there is constant competing for public favor."

Salmson Sails for Sweden

Emil Salmson, vice-president of the Royal Automobile Club of Sweden and president of the Swedish Automobile Dealers Association, has sailed for Europe after a six-weeks' trip studying business and distributing conditions in this country. Mr. Salmson was very much impressed with conditions as he found them here and expects to apply some of the ideas acquired to automobile merchandising in Sweden.

Falls Rubber Changes

G. D. Kratz, former vice-president of the Falls Rubber Co., has succeeded J. O. King as president. Other new officers are W. P. Cline, vice-president and treasurer, and F. H. Comey, vice-president and secretary. Net earnings of the company amounted to \$2.60 a share on the common stock after preferred dividends. Sales gained 40 per cent over 1926.

Gates Visits South America

Charles C. Gates, president of the Gates Rubber Co., sailed from New Orleans on Jan. 14 for a comprehensive business survey of South America. He was accompanied by Mrs. Gates and expects to be gone several months. Mr. Gates feels that South America offers an increasingly important market for American manufacturers.

North East Service, Inc., Holds Annual Meeting

The seventh annual convention of North East Service, Inc., was held from Jan. 17 to 21 at the home office in Rochester, N. Y. R. L. Clark, manager of the Paris branch; W. S. Ellis, manager of the London branch, and J. W. Neun, manager of the Toronto branch, attended, as well as the managers from the seven domestic branches.

The program included addresses by R. J. Kelleher, manager of North East Service, Inc., and E. A. Halbleib, general manager of North East Electric Co. W. K. Lee, sales manager, talked on sales features, and Dale P. Cartwright, service manager, addressed the men in regard to service on North East equipment. C. W. Coopman, treasurer, and K. O. Woocott, assistant general manager, spoke on branch and service station accounting and stock and shipments. T. L. Lee, chief engineer of the North East Electric Co., gave a talk on engineering developments.

Oldsmobile Promotes Sudrow

F. G. W. Sudrow has been appointed regional manager by Oldsmobile. He will have charge of the Pacific Region and will maintain headquarters at the Oldsmobile branch in San Francisco. For the past two years Mr. Sudrow has been manager of the San Francisco branch. He will be succeeded as manager by Thomas M. Ray.

Resigns as Detroit Manager

The Manhattan Rubber Mfg. Co. of Passaic, N. J., announces that L. J. McKenney has resigned as manager of the Detroit Branch. Until a successor is appointed to fill the vacancy, Chris Bockius will serve as acting manager of the branch.

Schmidt Plans New Trip

Walton Schmidt, field representative for the National Automobile Chamber of Commerce, is planning to start at an early date on another six to eight months' tour of English speaking countries. This tour will include the Philippines, Japan, Asia and parts of Africa.

Appel Sails for Home

W. D. Appel, chief engineer of Vauxhall Motors, Ltd., returned to London on the S. S. Aquitania sailing Jan. 27. Mr. Appel has been in the United States for several weeks visiting the factories.

Fisher Donates \$1,000,000

Fred J. Fisher, vice-president of General Motors Corp., has given \$1,000,000 to the Little Sisters of the Poor for a new home in Detroit.

1928 Automobile Shows Breaking All Previous Attendance Records

Cities Throughout Country Report Banner Crowds and Unusual Public Interest

PHILADELPHIA, Jan. 27—All previous automobile show attendance records in the United States will be broken this year, according to reports received from a number of cities in which the 1928 shows have been held or are in progress.

In Chicago it is forecast that the national show which opens there tomorrow in the Coliseum will outdraw the 1927 event to an extent comparable to the increase which was recorded at New York, when last year's attendance was bettered by 10 per cent. More than 200 manufacturers of vehicles, parts and accessories will exhibit at Chicago. Forty-four different makes of cars will be displayed.

The Brooklyn show, which is running this week, has drawn larger crowds than in previous years. From Milwaukee comes the report that the paid attendance there will run at least 110,000 as compared with 92,000 in 1927. In Louisville the attendance during the first four days was 22,000 greater than for the corresponding period in the best previous year.

The gate receipts at Cincinnati up to and including Thursday of show week equalled the total for the entire week last year. At Newark capacity crowds were reported with new records established all along the line. In spite of extremely inclement weather, the show at Buffalo ran 11 per cent ahead of last year's in paid attendance. The Detroit show likewise attracted record crowds.

Washington's show opens tomorrow and the local automotive trade association has prepared to accommodate a greater outpouring than ever before. At Baltimore, where the show is in progress this week, it is the same story—the greatest crowds in history.

Two reasons are given for these record attendance figures. One is that public interest has been raised to a high pitch by the unusually large number of entirely new models brought out by the industry this year; the other that the hundreds of thousands of prospective purchasers who deferred buying last year pending the introduction of the new Ford are now ready to go into the market and are flocking to the shows to make their choice.

Insurance Campaign Reopened

NEW YORK, Jan. 25—The United Auto League is inaugurating another campaign to secure compulsory automobile insurance in the state legislature. This campaign will take the form

of a number of mass meetings. Commissioner of Motor Vehicles Charles A. Harnett and State Senator Nathan Straus, Jr., who has sponsored several compulsory insurance bills, will speak at the first meeting.

Boeing Official Heads Pacific Air Transport

PORTLAND, ORE., Jan. 25—Reorganization of Pacific Air Transport, air-mail carriers on the Pacific Coast, was effected at a meeting of the stockholders. P. G. Johnson of Seattle was elected president to succeed Vern C. Gorst, one of the organizers of the concern, who now takes the position of vice-president. Mr. Johnson is vice-president and general manager of the Boeing Transport Co. of Seattle, which has purchased a large interest in Pacific Air Transport.

Construction on several new planes for the Pacific Coast route will be started in the near future at the Boeing plant in Seattle.

To Build 350 Planes

KANSAS CITY, Jan. 17—Increased business has forced the American Eagle Aircraft Corp., a Kansas City concern, to seek larger quarters. The company last year built 92 planes. The schedule this year calls for at least 350 planes. Orders for 130 are now on file, deliveries to be made as quickly as possible. E. E. Porterfield, Jr., is president of the company.

P. A. Sales Increase

NEW YORK, Jan. 21—Myron E. Forbes, president of Pierce-Arrow Motor Car Co., has announced that the formal introduction of the new Pierce-Arrow series 81 has been followed by record early January sales in New York City. Metropolitan sales during the first 14 days were 33 per cent ahead of last year, and 90 per cent ahead of the three-year average.

AC Builds Paris Plant

FLINT, MICH., Jan. 27—Construction of a modern new plant at Paris, France, a self-contained unit with facilities for making AC products, is announced by the AC Spark Plug Co.

Mooney Shows Trade Film

J. D. Mooney, president of General Motors Export Co., gave a preview of a film entitled "General Motors Around the World," on board the S. S. Aquitania, Jan. 26. The film visualizes the development of automotive transportation throughout the world.

Original Equipment Production Higher

NEW YORK, Jan. 24—The Motor & Accessory Manufacturers' Association reports a grand index for production of representative member companies during the month of December as 109, taking January, 1925, as a basis of 100. This compares with grand index of 102 for the preceding month and of 94 for December, 1926.

The increase is due primarily to the increased production of original equipment which in turn is affected by the active work in December of automobile manufacturers in preparing for the 1928 market.

Original equipment index for December was 111, compared with 99 in November and 95 in December, 1926.

Replacement parts had an index of 126, compared with 132 in November and 109 a year ago.

Accessories have shown a marked falling off, with an index of 61, compared with 75 in November and 64 in December, 1926.

Shop equipment index was 104, compared with 143 for the preceding month and 112 a year ago.

Decrease Recorded in Tire Shipments

NEW YORK, Jan. 24—Tire inventories showed an increase during November, 1927, for all types in spite of a decrease in production, according to statistics just issued by the Rubber Association of America. Shipments of all types showed a marked decrease during the month. Comparisons follow:

Pneumatic Casings—All Types				
	Inven-	Produc-	Ship-	
	tory	tion	ments	
Nov., 1927	7,601,898	3,376,152	3,229,164	
Oct., 1927	7,248,724	3,582,879	3,599,455	
Nov., 1926	7,797,939	3,243,499	2,800,154	
Inner Tubes—All Types				
Nov., 1927	10,188,834	3,581,294	3,541,928	
Oct., 1927	10,154,694	3,798,996	3,768,568	
Nov., 1926	12,453,021	3,639,120	3,034,373	
Balloon Casings				
Nov., 1927	3,897,982	1,601,372	1,612,347	
Oct., 1927	3,764,591	1,683,003	1,809,385	
Nov., 1926	3,162,512	1,396,292	1,273,562	
Balloon Inner Tubes				
Nov., 1927	4,630,880	1,263,065	1,460,933	
Oct., 1927	4,965,306	1,415,650	1,607,119	
Nov., 1926	4,384,791	1,283,455	1,243,944	
High Pressure Cord Casings				
Nov., 1927	3,509,342	1,713,842	1,556,780	
Oct., 1927	3,290,601	1,830,171	1,710,288	
Nov., 1926	4,003,724	1,694,257	1,399,176	
High Pressure Inner Tubes				
Nov., 1927	5,557,954	2,318,229	2,080,995	
Oct., 1927	5,189,388	2,383,346	2,161,449	
Nov., 1926	8,068,230	2,355,665	1,790,429	

Falcon-Knight Expansion

NEW YORK, Jan. 24—John A. Nichols, Jr., president of Falcon Motors Corp., says plans are under way for the enlargement of the Falcon-Knight plant at Elyria, Ohio, to give a production of 30,000 cars for 1928.

3,393,887 Vehicles Produced Last Year

Car and Truck Output in U. S. is 904,912 Short of 1926.

WASHINGTON, Jan. 26—Automobile production in the United States during 1927 totaled 3,393,887 cars and trucks as compared with 4,298,799 manufactured during 1926, according to complete production figures just announced by the U. S. Department of Commerce. The December production totaled 133,178, of which 105,784 were passenger cars and 27,394 were trucks. Canadian production in December totaled 2277 passenger cars and 1158 trucks as compared with 6052 passenger cars manufactured in December, 1926, and 1700 trucks.

Following are comparative figures of the 1927 and 1926 production of cars and trucks as reported by the 155 manufacturers, 54 making passenger cars and 120 making trucks (18 making both passenger cars and trucks):

	Cars	Trucks	Total
	1926		
January	277,831	31,713	309,544
February	325,122	39,058	364,180
March	357,570	46,900	434,470
April	389,833	51,474	441,307
May	375,317	45,867	421,184
June	343,708	44,192	387,900
July	319,688	39,587	359,275
August	332,651	43,955	426,606
September	352,202	43,485	395,687
October	292,562	41,859	334,421
November	222,419	33,882	256,301
December	139,850	28,074	167,924
Total	3,908,753	490,046	4,298,799
	1927		
	Cars	Trucks	Total
January	199,650	39,276	238,926
February	264,171	40,587	304,758
March	345,911	48,519	394,430
April	357,009	47,734	404,743
May	357,148	46,951	404,099
June	278,728	43,231	321,959
July	236,866	31,608	268,474
August	274,378	34,429	308,807
September	226,440	33,930	260,420
October	183,041	36,671	219,712
November	109,742	24,639	134,381
December	105,784	27,394	133,178
Total	2,938,868	455,019	3,393,887

Fairless is New President of Central Alloy Steel

CANTON, OHIO, Jan. 25—Announcement that Charles E. Stuart had tendered his resignation as president, treasurer and director of the Central Alloy Steel Corp. came as a surprise to financial circles. He is being succeeded by B. F. Fairless, formerly vice-president and general manager, while S. S. French, president of the Berger division, has been elected a director to fill Stuart's place on the board and also was named treasurer.

F. J. Griffiths, chairman, in making his brief statement said no other personnel changes were contemplated.

Horn Sound Controls New Traffic Light

BALTIMORE, Jan. 24—Much interest has been created here by an announcement that the police department plans to try out a new intersection signal light which is controlled by the horns on motor vehicles. It has been invented by Charles Adler, Jr., of Baltimore.

According to the announcement the signal is for use in suburban sections where the traffic on main arteries is heavy and motorists using the cross-roads are placed at a disadvantage. It is said that when an automobile approaches on one of the side roads and the horn is sounded the light will flash red on the main artery and remain red for sufficient length of time to allow the motorist to cross the traffic. Then it automatically becomes green again.

It was said that as soon as the patents are granted the Baltimore police department will install one of the signals for trial.

2-Brake Law Urged for All State Codes

Eastern Motor Vehicle Administrators Support Move to Check Accidents

NEW YORK, Jan. 24—A resolution was adopted urging that state motor vehicle laws require cars to have two effective braking systems, one to supplement the other in case of accident to the service brake, by the Eastern Conference of Motor Vehicle Administrators, meeting this week in City Hall. This resolution resulted from a long discussion brought up by the announcement that Ford Motor Co. had found it necessary to redesign its braking system to sell in certain states. All commissioners agreed to make a study to ascertain whether any other cars would have to be changed if such a law were passed.

A committee was also appointed to consider the need of equipping automobile trailers with brakes. This question arose as the result of a fatal accident caused by a trailer not so equipped, skidding recently. Commissioner W. L. Dill of New Jersey was made chairman of this committee.

The next meeting will be held in Cleveland some time in April.

A.R.A. to Complete Automotive Division

BOSTON, Jan. 24—Vice-President New Haven & Hartford Railroad, temporary chairman of the Motor Transport Division of the American Railway Association, has sent out a call to representatives of railroads in this country and Canada to meet in Chicago, Jan. 25 and 26 for a conference to make the division a permanent organization. Officers are to be elected and a permanent general committee will be selected.

Creation of the Motor Transport Division resulted from the large number of railroads which are now supplementing their rail service with motor buses. It is planned to bring together railroad executives interested in the development of motor transportation, whether freight or passenger, to study the problems growing out of such means of transportation and, through the coordination of rail carriers, to devise the most effective means possible for the development of that type of transportation.

The Motor Transport Division will also study the application of the rail motor car to the use of steam railroads.

Harvey Firestone, Jr., Sails

Harvey Firestone, Jr., and his party have sailed for Liberia, on the coast of Africa, where the Firestone rubber plantations will be inspected.

South America Zeppelin to be Completed in May

NEW YORK, Jan. 23—*Automobil Welt* of Dec. 18 gives information concerning the state of the new Zeppelin L. Z. 127, which is being built for service between Spain and South America. The framework is to be completed in February. At the time of the report 280 ft. of the total length of 740 ft. of the frame had been assembled. In general appearance the new airship will be very similar to the Z. R.-3 (the Los Angeles), but it will be 50 per cent larger.

Each of the Maybach engines will develop 500 hp. or 70 hp. more than the engines on the Los Angeles, giving a total of 3000 hp. In contrast to the procedure followed in building the Los Angeles, the large cabin of which was built separately and later mounted on the hull of the ship, in the new ship the cabin is being built integral with the hull. The quarters for the crew will again be inside the hull. It is expected that the ship will be ready for the air late in May.

Harry Hartz Improves

Harry Hartz, who has been at the Lawrence General Hospital since his accident at Rockingham Speedway, Oct. 12, has been moved to Boston where he is now in the Phillips Brooks House, attached to the Massachusetts General Hospital, Boston. He is now progressing more favorably and in a few weeks expects to leave for his home in California.

M. & A.M.A. Survey Shows More Outlets

Shop Equipment Wholesale Accounts in 591 Cities— 275 are First Line

NEW YORK, Jan. 24—Less than 300 cities in the United States can be considered wholesale centers for shop equipment manufacturers, according to a survey just completed by the Motor & Accessory Manufacturers' Association.

The survey lists 591 cities and towns in which shop equipment manufacturers have wholesale accounts but in a majority of these places only one manufacturer is represented. There are 332 cities listed where three or more manufacturers have representation. The cities which might be called first line jobbing centers, having five or more of the 25 manufacturers represented, are 275 in number.

The survey analyzes the entire country, state by state and city by city, showing the number of manufacturers represented in each city, the average number of jobbers per manufacturer and the maximum number of jobbers employed by any one manufacturer in each city.

The survey is the second study of wholesale outlets made for the shop equipment group of M. & A.M.A. The first, completed 18 months ago, showed fewer cities than now recognized as jobbing centers, yet the increase has been in keeping with the growth in motor vehicle registrations and automotive service establishments. The survey showed only one manufacturer selling through less than 100 jobbers, five selling between 100 and 200 jobbers, eight selling between 200 and 300 jobbers, four selling between 300 and 400 jobbers and four selling more than 500 wholesale accounts.

K.C. Used Car Wrecking Now on Dividend Basis

KANSAS CITY, Jan. 24—The United Automobile Wrecking Co., the dealer owned wrecking organization here, continues to make gains that have placed it on a sound financial basis along with helping the dealers solve their used car problem. The company has been able to keep a full force of workmen busy throughout the winter with the sale from parts increasing steadily. Sales now average more than \$300 a day on parts alone and shipments of junk are being made regularly.

Profits from the business, according to George A. Bond, secretary-treasurer of the Kansas City Motor Car Dealers Association and also secretary-treasurer of the wrecking company, have been sufficient to pay all operating expenses, restore the cash "borrowed" from the \$50,000 cash capital in establishing the business, and to provide a balance that would permit the decla-

Meetings and Events Scheduled for Week of Chicago Automobile Show

SATURDAY, JAN. 28

Hupp Motor Car Corp., Luncheon and Meeting every day, Stevens Hotel. Studebaker Corp. of America, Luncheon, Hotel Stevens Noon

Luncheon, Blackstone Hotel 1.00 p. m.

Automotive Electric Association, Annual Electrical Service Meeting, Stevens Hotel 10.00 a. m. to 5.00 p. m.

H. H. Franklin Mfg. Co., President's Luncheon, Drake Hotel 1.00 p. m. Gardner Motor Co., Luncheon and Dealer Meeting, Blackstone.

Nash Motors Co., Dealers' Meeting and Luncheon, Congress Hotel Noon

National Automobile Dealers Ass'n, Members' Meeting, Palmer House 10.00 a. m.

Members' Meeting Palmer House 2.00 p. m. Dinner, Palmer House.... 6.30 p. m.

Olds Motor Works, Show Dinner, Congress Hotel.. 7.00 p. m.

Peerless Motor Car Corp., Luncheon, Congress Hotel.....Noon

Velle Motors Corp., Luncheon and Meeting, Congress Hotel 1.00 p. m.

Willys-Overland, Inc., Dealer Meeting, Palmer House... 1.30 p. m. Banquet, Palmer House... 6.30 p. m.

MONDAY, JAN. 30

National Automobile Dealers Ass'n, Directors' Meeting, Palmer House 10.00 a. m. Packard Motor Car Co., Meeting and Luncheon. Packard Distributors and Dealers, Blackstone Hotel 9.00 a. m. to 5.00 p. m.

TUESDAY, JAN. 31

Automotive Electric Association, Annual Electrical Service Meeting, Stevens Hotel.....10.00 a. m. to 5.00 p. m. National Association of Automobile Show and Association Managers, Luncheon and Annual Meeting, Drake Hotel 1.00 p.m. National Automobile Dealers Association, Business Session, Palmer House..... 2.00 p. m. Oakland Motor Car Co., Meeting, Palmer House... 1.00 p. m. Banquet, Palmer House... 6.30 p. m. Packard Motor Car Co., Meeting and Luncheon. Packard Distributors and Dealers, Blackstone Hotel 9.00 a. m. to 5.00 p. m.

WEDNESDAY, FEB. 1

Auburn Automobile Co.,

THURSDAY, FEB. 2

Graham-Paige Motor Car Co., Luncheon, Blackstone Hotel Noon

FRIDAY, FEB. 3

Chevrolet Motor Co., Business Meeting, Erlanger Theatre 1.30 p. m. Banquet, Palmer House.. 6.30 p. m.

ration of a dividend if the directors so desired. However, the matter of a dividend will be deferred as the company expects a big expansion in the spring.

Central Brass to Build

SPRINGFIELD, OHIO, Jan. 24—Central Brass & Fixture Co., of which L. R. Hildreth of Columbus is president, will soon award a contract for a large addition to its plant. Much additional equipment will be installed in the plant and the capacity will be doubled. The company manufactures Buckeye Bumpers for automobiles, distributed through the jobbing trade. Prospects for business in 1928 are extremely bright according to A. O. Dennis, vice-president and general manager.

NEW YORK, Jan. 23—Gasoline consumption for the 11 months ended Nov. 30, 1927, was 5,677,329,000 gal. compared with 5,099,928,000 gal. for the corresponding period in 1926, according to a bulletin just issued by American Petroleum Institute. This represents an increase of 11.3 per cent for the 11 months' period.

Dodge Dealer to Stage Transportation Exhibit

PHILADELPHIA, Jan. 23—A large transportation exhibition will be held Feb. 6 to 18 by the Thornton-Fuller Automobile Co., Philadelphia, dealer for Dodge Brothers, Inc., at its maintenance building. Nearly 150 different units will be shown, including a full line of trucks with many types of standard and special bodies. There will also be a passenger car section to the show.

A number of truck body builders are cooperating with Thornton-Fuller in this show. There will also be several shop exhibits by accessory and shop equipment makers, including Handy Governor Co., Miller Tool Co. and Fenwick Tool Co. The exhibition is being held in cooperation with the Dodge Brothers factory.

Aircraft Engine Works Listed for Public Sale

DETROIT, Jan. 24—Public sale of the Detroit Aircraft Engine Works will be held some time in the next three weeks, according to the Guardian Trust Co. of Detroit, which was appointed receiver about three weeks ago.

G.M. Sales for 1927 Show Gain of 28%

Low Dealers' Stocks at End of Year Indicate Faster Turnover, Says Sloan

NEW YORK, Jan. 25—General Motors Corp. reports retail sales to consumers during December as 53,760 cars, compared with 52,729 in December, 1926, and 56,129 in December, 1925.

In commenting on the figures, Alfred P. Sloan, Jr., president, states that December sales were affected somewhat adversely by reason of the fact that the new Chevrolet, Pontiac and Oldsmobile products were in process of development at that time.

Sales to dealers totaled 60,071 cars, as compared with 44,130 in December, 1926, and 54,117 in December, 1925.

"In view of the fact that this report completes the year 1927," says Mr. Sloan, "it is interesting to point out, as shown in the detailed tabulation below, that General Motors dealers sold to consumers in the year 1927 1,554,577 cars, as compared with 1,215,826 cars for the calendar year 1926, and again compared with 827,056 cars for the year 1925, an increase in 1927 over 1926 of 28 per cent. It is also interesting to note that notwithstanding the material increase in volume of General Motors business, cars in the hands of dealers at the close of 1927 were practically the same as a year ago, indicating a more favorable turnover, as evidenced by the close relationship between dealers' sales to consumers and General Motors' sales to dealers for the year 1927."

Comparisons follow:

	Dealers' Sales to Users		Divisions' Sales to Dealers	
	1927	1926	1927	1926
Jan. .	81,010	53,698	99,367	76,332
Feb. .	102,025	64,971	124,426	91,313
Mar. .	146,275	106,051	161,910	113,341
Apr. .	180,106	136,643	169,067	122,742
May. .	171,364	141,651	173,182	120,979
June. .	159,701	117,176	155,525	111,380
July. .	134,749	101,576	136,909	87,643
Aug. .	158,619	122,305	155,604	134,231
Sept. .	132,596	118,224	140,607	138,360
Oct. .	153,833	99,073	128,459	115,849
Nov. .	80,539	101,729	57,621	78,550
Dec. .	53,760	52,729	60,071	44,130
Total	1,554,577	1,215,826	1,562,748	1,234,850

These figures include passenger cars and trucks sold in the United States, Canada and overseas by the Chevrolet, Pontiac, Oldsmobile, Oakland, Buick, La Salle and Cadillac manufacturing divisions of General Motors.

Connecticut Bus Tax Law Before Supreme Court

WASHINGTON, Jan. 26—The constitutionality of the Connecticut law taxing interstate buses was argued this week before the U. S. Supreme Court in the case of the Interstate Bus Corp.

vs. Bloggett, Tax Commissioner, case No. 197. The bus corporation is resisting the payment of a levy of one cent per mile on each mile of its line operated interstate.

Discrimination is charged in that intrastate buses are not required under the Connecticut law to pay the tax. Council for the bus company argued that the act constitutes an unwarranted burden and discrimination against interstate commerce. The bus company asked for a restraint of the order against the enforcement of the provisions of the act and also to prevent the Connecticut authorities from arresting its drivers. The decision of the court will be announced probably in February.

Bishop Buys Factory

AKRON, OHIO, Jan. 25—The Bishop Engineering Co., specializing in reclaimed rubber development work, has purchased a factory in Akron. New equipment is being installed for experimental and research work. C. E. Bishop is president of the company.

"Fleetarrow" Inauguration

BUFFALO, Jan. 26—The Commercial Car Division of The Pierce-Arrow Motor Car Co. will stage inaugural ceremonies in 100 cities on March 5, to introduce its new "Fleetarrow" truck model.

Financial Notes

Triplex Safety Glass Co., Ltd., has recently issued its previously unissued balance of 25,000 shares for a total cash consideration of £180,000. The company will also relinquish, on March 1, 25,000 shares at £2 each, on which option has been held and will be exercised at that time. Part of the money received from this sale will be used to repay a loan of £30,000 held by the holders of the option.

The effect of these transactions will be that on March 1 total authorized capital of £150,000 will have been issued and a premium reserve account of £185,000 will exist. This additional financing is being made to increase the factory equipment and complete two additional plants at King's Norton, Eng., in order to meet additional contracts for Triplex glass, the largest of which is to supply the Austin Motor Co., Ltd. This contract, it is understood, will call for Triplex glass to the value of from £500,000 to £750,000 per annum.

Nash Motors Co. reports net income for the year ended Nov. 30, 1927, after depreciation, state and Federal taxes, as \$22,670,745, compared with \$23,346,306 for 1926. This is equivalent to \$8.30 a share on the 2,730,000 shares of no par common stock. Current assets are placed at \$49,878,044, with current liabilities of \$1,596,911.

During the year the company paid in cash dividends \$13,650,000 and closes the year's activities with a balance of \$42,274,333.

Wire Wheel Corp. of America has called a special meeting of stockholders for Feb. 2 to vote on the proposition of splitting up the common stock on a 10 for 1 basis.

Cooperative Buying Bill is Supported

N.A.C.C. Asks Members to Back Amendment to Webb-Pomerene Act

NEW YORK, Jan. 25—The National Automobile Chamber of Commerce has issued a bulletin to its members urging active support of the bill now pending in Congress to secure an amendment to the Webb-Pomerene act, which would extend the powers of that act to permit importers to combine for their purchases abroad with certain limitations.

The bill, which is supported by the Department of Agriculture and by several national associations, specifically mentions rubber, sisal and potash as commodities which could be so purchased.

Among the industrial groups who appeared last week before the House Committee on the Judiciary in support of this bill were John J. Raskob of the N.A.C.C., Charles Segar of the Rubber Association of America, Harvey S. Firestone of the Firestone Tire & Rubber Co., George W. Offutt of the American Automobile Association, Frank Schaut and Day Baker of the National Automobile Dealers Association, and L. J. Taber, national master of the National Grange. A brief in support of the bill was filed by M. L. Heminway of the Motor and Accessory Manufacturers Association.

900 Attend Chevrolet Meeting in Detroit

DETROIT, Jan. 26—More than 900 dealers from the Flint and Detroit zones attended a sales meeting at the Oriole theater, Detroit, today. The meeting was similar to others which the Chevrolet company has been holding in 36 cities across the United States for Chevrolet dealers and their associates in the various sales zones. The final meeting of the series will be held at Jacksonville, Fla., March 23.

Meetings this year are being conducted by two groups of Chevrolet sales executives. R. H. Grant, vice-president in charge of sales, heads the party conducting meetings in the Eastern part of the country and H. J. Klingler, general sales manager, is leading a similar group through the West. In Mr. Grant's party are: D. E. Ralston, D. G. Frazer, W. G. Lewellen, Gus Ek, J. E. Rogers and D. U. Bathrick. Mr. Klingler's party includes M. D. Douglas, R. K. White, William A. Bless, J. P. Little and Sidney Corbett.

Stoewer Using AC Fuel Pump

FLINT, MICH., Jan. 26—The AC Spark Plug Co. announces that the AC fuel pump has been adopted as standard equipment on the Stoewer car, a well-known German product.

General Tire Votes New Stock Issue

Present Outstanding Preferred
to be Redeemed—Prepares
for Expansion

AKRON, Jan. 26—Retirement of the seven per cent preferred stock and immediate issuance of \$3,500,000 par value of new preferred stock with provision for \$6,500,000 more when expansion demands, has been decided upon by the General Tire & Rubber Co. Present outstanding preferred stock amounting to \$1,042,000 will be called in for redemption April 1, at \$112 a share plus accrued dividends.

The new issue, entitled to 6 per cent dividend, will be offered for sale at \$102 per share. Each stockholder may exchange share for share, plus \$10 in cash per share and a dividend adjustment.

The company along with others is preparing for an unusually big sales year. It apparently seeks its slice of the big melon-cutting in prospect. To obtain it, a revision of capital is advisable, the company heads say. But the significance lies in the fact the rubber industry is going to "ride along" with the automobile industry in a year expected to be featured by enormous sales.

U. S. Rubber Consumption Placed at 370,915 Tons

NEW YORK, Jan. 24—Irregularity has pervaded the rubber market during the past week but prices were fairly well maintained in New York by heavy buying support in spite of bearish tendencies in London, according to Henderson, Helm & Co.

Consumption of rubber during 1927 is placed by the Rubber Association of America at 370,915 tons as against 358,415 tons for the previous year.

Gross imports were placed at 432,316 tons as against 411,962 in 1926. Net imports, according to the Rubber Division of the Department of Commerce, were placed at 401,500 tons, with consumption at 370,900 tons.

Arrivals at New York during the first three weeks of January are estimated at 25,200 tons.

Firestone Discusses Rubber Situation With Coolidge

WASHINGTON, Jan. 26—Plans for the production of rubber in the Philippines were discussed this week by Harvey S. Firestone with the President. Mr. Firestone stated that he had discussed with the President the British and Dutch monopolies of rubber and their effect on the automobile industry in this country.

He stated that the President had evidenced interest in the efforts of American rubber consumers to produce rubber in Liberia and the Philippines.

Radio to Connect Goodyear Plants

AKRON, Jan. 26—Goodyear Tire & Rubber Co., is the second tire company to realize the economic possibilities in short wave radio transmission between its subsidiaries and the home office. Hearings were held on a recent date by the Federal Radio Commission on their applications for four stations at Akron, Los Angeles, Wolverhampton, Eng., and Sydney, Australia.

Firestone Tire & Rubber has already been granted a permit to operate between Akron and its Liberian plantations. Actual operation is due to start March 1, company engineers have estimated.

The laws of the latter, governing the growing of rubber, must be changed to make production commercially feasible, he said.

Board Proposed to Solve Grade-Crossing Problem

WASHINGTON, Jan. 26—The creation of a "People's Safety Board" to determine a practical automatic crossing control, designed to prevent automobile and train accidents, is proposed in a resolution just introduced in the House by Representative Walter H. Newton of Minnesota. Numerous inventions designed to prevent automobile accidents at grade crossings are now pending, Mr. Newton told his colleagues in the House, and the purpose of the creation of the board would be to determine what devices are practical and the protection of the inventors of such devices.

In the test of these devices all appliances are to be supplied by the inventors at their own expense. Railroads must pay the cost of trial installation. The proper installation of such automatic controls at grade crossings, the author declared, would conserve thousands of lives of motorists annually. The bill was referred to the Interstate and Foreign Commerce Committees.

Excise Tax Revenue Drops

WASHINGTON, Jan. 26—A total of \$4,442,102.99 was paid in excise taxes by the purchasers of new cars during December, according to figures announced by the Internal Revenue Bureau. This was a decrease of \$674,898 compared with December, 1926, taxes. The 3 per cent excise tax on passenger cars netted the Federal Government, during the last six months of last year, a total of \$31,242,084, compared with \$37,206,262 collected the last six months of 1926.

Browne Introduces Highway Fund Bill

Would Divide Among States
\$407,341,145 Which France
Owes U. S.

WASHINGTON, Jan. 28—A bill authorizing the creation of a special highway fund, providing a total of \$407,341,145, to be allotted among the states in the same proportion as the Federal aid funds authorized each year, was introduced in the House today by Congressman Edward E. Browne (R) of Wisconsin.

The sum provided in the measure, which is sponsored by the American Motorists' Association, is to be obtained by the repayment of French bonds issued after the war covering an invoice of approximately \$2,000,000,000 worth of property, including road-building machinery, which was ordered in June, 1919, by the War Department to be turned over to the Agricultural Department to be proportioned among the states for use in highway construction. Bonds totaling \$400,000,000 mature on Aug. 1, 1929, the remainder one year later.

Before the War Department's order for the return of the equipment was received in France, negotiations had already gone too far for the sale of the property to France, at approximately 20 cents on the dollar. The intent on the part of the Government, however, was that it should be used by the states in highway construction, and this intent can still be carried out by favorable action on the Browne bill.

G.M. Employees Split \$5,066,299 Melon

NEW YORK, Jan. 26—Cash and stock amounting to \$5,066,299 are being distributed this week to 9432 employees of General Motors participating in its Employees' Savings and Investment Fund Class of 1922, according to Alfred P. Sloan, Jr., president.

All General Motors employees who have been with the corporation three months or more have the opportunity of investing 20 per cent of their wages up to \$300 per year in a fund to which the corporation adds 50 cents for every dollar invested by the employee. The total amount is then invested in General Motors common stock, the corporation guaranteeing the employee his principal plus 6 per cent interest.

In the case of an individual who paid \$300 into this fund in 1922, there is returned to him cash and General Motors common stock having a total value at the present market of \$1,241.

At the present time 85 per cent of the eligible employees of the corporation, or more than 125,000, are participating in this plan and more than 12,500 are in this way being assisted in the purchase of homes.

Excise Tax Action Delayed by Senate

WASHINGTON, Jan. 23—The \$290,000,000 tax reduction bill, which eliminated the 3 per cent excise tax on passenger cars, and which was passed by the House in December, has been shelved by the Senate finance committee, who voted 11 to 9 to postpone consideration of the bill until after March 15.

The vote to sidetrack the measure was a strict party vote, with the Republicans supporting the postponement program. The bill contains a \$65,000,000 reduction program more than the administration desires, and it was announced that by postponing the measure, approximately \$50,000,000 more in taxes would accrue to the Federal Government.

The administration's program called for a continuance of the 3 per cent tax, it being declared that the \$60,000,000 which the tax would yield was necessary. Those conversant with the 10-year fight for complete repeal of the automotive excise taxes, anticipate that inasmuch as the government will receive approximately this sum by the postponement of the passage of the bill, that the measure, as passed by the House, insofar as it relates to automobile taxes, will be adopted by the Senate.

Timken Roller Bearing Plans \$4,000,000 Extension

CANTON, OHIO, Jan. 26—Officials of the Timken Roller Bearing Co. announce that an expenditure of \$4,000,000, to be devoted to increasing production facilities, has been authorized for the coming year. At the Canton plant both the steel mill and the bearing manufacturing plant proper will be considerably enlarged.

Among other features a new substation of greater kilowatt capacity will be built for supplying electric power for both the steel mill and the factory.

Coming Feature Issue of Chilton Class Journal Publications

Feb. 18—Statistical Issue—
Automotive Industries.

New Factory Completed by Ditzler Color Co.

DETROIT, Jan. 25—The Ditzler Color Co., manufacturer of automotive finishing materials, has just completed the construction of a new factory which practically trebles its capacity. The new factory is made up of five separate buildings. It embodies the most modern ideas in plant construction in this particular field of manufacture, and represents the largest exclusive automotive finishing materials plant yet built. One entire building is devoted to a laboratory and research department.

The Ditzler Color Co. was organized in 1902. It was founded by Peter M. Ditzler and L. Fred Ditzler. In 1913 the Ditzler family holdings were purchased by Thomas W. Connor, who succeeded Peter M. Ditzler as president. Mr. Connor has recently been made chairman of the board and E. R. Hoag, president and general manager. The other officers are William T. Utley, vice-president and treasurer, and Kirke W. Connor, secretary.

William duPont

William duPont, retired head of the du Pont interests and one of the organizers of E. I. du Pont de Nemours & Co., died suddenly last week at his winter home near Brunswick, Ga. He was 72 years old.

Otis R. Cook

Otis R. Cook, former official of the B. F. Goodrich Co., Kelly-Springfield Tire Co. and Howe Rubber Co., died last week in Cleveland at the age of 52. His career had been spectacular at one time and he was widely known.

Larger Tire Demand Speeds Production

AKRON, Jan. 23—A steady upward trend in automobile tire production has been maintained in the Akron district since the first of the year. Sales have been running unusually high for the time of the year, and rubber manufacturers are confident that business for the first quarter will surpass all previous records.

Approximately 5000 men, some of whom were laid off last fall, have been employed by the larger rubber companies during the past two months. Indications are that working forces will be further increased within the next few weeks.

Orders for close to 1,000,000 tires, it is understood, have been received by Goodyear, Goodrich, Firestone, Miller and Mason from General Motors divisions. Firestone is making the bulk of Ford's tire requirements, while Goodyear and Goodrich are getting the larger share of the Chevrolet business.

104 Buses Are Ordered by New York Railway

NEW YORK, Jan. 24—More than a million dollars will be spent by the Third Avenue Railway Co., for buses to serve the Bronx, according to the announcement by H. W. Huff, president. According to the announcement, contracts have been made with the Six Wheel Co. for 26 double-deck and 36 single-deck buses of the six-wheel type; with the Versare Corp. for 28 six-wheel gas-electric single-deck buses, and with the American Car & Foundry Co. for 14 single-deck A.C.F. buses of the dual wheel type.

Airports Over R. R. Yards

NEW YORK, Jan. 23—Airports over railroad terminals and tracks, similar in design and construction to the sea-going aircraft carriers, were predicted by Postmaster General Harry S. New at the annual dinner of the Building Managers & Owners Association.

Calendar of Coming Events

SHOWS

All Western Road Show, Los Angeles,	March 7-11
American Electric Railway Ass'n., Pub- lic Auditorium, Cleveland	Sept. 22-28
Automotive Equipment Association, Coliseum, Chicago	Oct. 22-27
Berlin	Nov. 8-18
*Boston, Mechanics Bldg.	March 10-17
Brussels	Dec. 8-19
*Chicago, National Automobile Cham- ber of Commerce, Coliseum	Jan. 28-Feb. 4
Copenhagen	Feb. 23-March 4
Geneva	March 16-25
Helsingfors, Finland	Feb. 19-26
International Aircraft Show, Berlin,	March 23-April 11
Laybach, Jugoslavia	June 2-11
Leipzig, trucks only	March 4-14
London, passenger cars	Oct. 11-20
Paris	Oct. 4-14

*Will have special shop equipment exhibit.

Prague Sept. 1-9

Rio de Janeiro May 3-13

Salon, Automobile Salon, Inc., Hotel

Drake, Chicago Jan. 28-Feb. 4

Salon, Automobile Salon, Inc., Hotel

Biltmore, Los Angeles Feb. 11-18

Salon, Automobile Salon, Inc., Palace

Hotel, San Francisco Feb. 25-March 3

United States Good Roads Show, Des

Moines May 28-June 1

Zagreb, Jugoslavia April 29-May 6

CONVENTIONS

American Electric Railway Ass'n., Pub-
lic Auditorium, Cleveland

Sept. 22-28

Automotive Equipment Association,

Grand Hotel, Mackinac Island

June 10-16

Automotive Equipment Association,

Coliseum, Chicago

Oct. 22-27

National Automobile Dealers Ass'n.,

Annual Meeting, Palmer House,

Chicago Jan. 31-Feb. 2

National Battery Mfrs. Ass'n., Chi-
cago Feb. 15-16

National Foreign Trade Council, Hous-
ton, Texas April 25-27

Society of Automotive Engineers, Cha-
teau Frontenac, Quebec June 26-29

United States Good Roads Association

and Bankhead National Highway

Association, Des Moines May 28-June 1

RACES

Atlantic City May 5

Belgium Aug. 12

Daytona Beach, Fla., series of stock
car races and world's speed trials,

Feb. 15-23

Detroit June 3

Germany July 15

Great Britain Sept. 22

Indianapolis May 30

Italy Sept. 2

Spain July 29